

890	895	900	905	
cta ctg cta gga gag gaa cgt tac aca cca gcc ata gat gtt tgg agc				2906
Leu Leu Leu Gly Glu Glu Arg Tyr Thr Pro Ala Ile Asp Val Trp Ser				
906	911	916	921	
tgt gga tgt att ctt ggg gaa cta ttc aca aag aag cct att ttt caa				2954
Cys Gly Cys Ile Leu Gly Glu Leu Phe Thr Lys Lys Pro Ile Phe Gln				
922	927	932	937	
gcc aat ctg gaa ctg gct cag cta gaa ctg atc agc cga ctt tgt ggt				3002
Ala Asn Leu Glu Leu Ala Gln Leu Glu Leu Ile Ser Arg Leu Cys Gly				
938	943	948	953	
agc cct tgt cca gct gtg tgg cct gat gtt atc aaa ctg ccc tac ttc				3050
Ser Pro Cys Pro Ala Val Trp Pro Asp Val Ile Lys Leu Pro Tyr Phe				
954	959	964	969	
aac acc atg aaa ccg aag aag caa tat cga agg cgt cta cga gaa gaa				3098
Asn Thr Met Lys Pro Lys Lys Gln Tyr Arg Arg Arg Leu Arg Glu Glu				
970	975	980	985	
ttc tct ttc att cct tct gca gca ctt gat tta ttg gac cac atg ctg				3146
Phe Ser Phe Ile Pro Ser Ala Ala Leu Asp Leu Leu Asp His Met Leu				
986	991	996	1001	
aca cta gat cct agt aag cgg tgc aca gct gaa cag acc cta cag agc				3194
Thr Leu Asp Pro Ser Lys Arg Cys Thr Ala Glu Gln Thr Leu Gln Ser				
1002	1007	1012	1017	
gac ttc ctt aaa gat gtc gaa ctc agc aaa atg gct cct cca gac ctc				3242
Asp Phe Leu Lys Asp Val Glu Leu Ser Lys Met Ala Pro Pro Asp Leu				
1018	1023	1028	1033	
ccc cac tgg cag gat tgc cat gag ttg tgg agt aag aaa cgg cga cgt				3290
Pro His Trp Gln Asp Cys His Glu Leu Trp Ser Lys Lys Arg Arg Arg				
1034	1039	1044	1049	
cag cga caa agt ggt gtt gta gtc gaa gag cca cct cca tcc aaa act				3338
Gln Arg Gln Ser Gly Val Val Val Glu Glu Pro Pro Pro Ser Lys Thr				
1050	1055	1060	1065	
tct cga aaa gaa act acc tca ggg aca agt act gag cct gtg aag aac				3386
Ser Arg Lys Glu Thr Thr Ser Gly Thr Ser Thr Glu Pro Val Lys Asn				
1066	1071	1076	1081	
agc agc cca gca cca cct cag cct gct cct ggc aag gtg gag tct ggg				3434
Ser Ser Pro Ala Pro Pro Gln Pro Ala Pro Gly Lys Val Glu Ser Gly				
1082	1087	1092	1097	
gct ggg gat gca ata ggc ctt gct gac atc aca caa cag ctg aat caa				3482
Ala Gly Asp Ala Ile Gly Leu Ala Asp Ile Thr Gln Gln Leu Asn Gln				
1098	1103	1108	1113	
agt gaa ttg gca gtg tta tta aac ctg ctg cag agc caa acc gac ctg				3530
Ser Glu Leu Ala Val Leu Leu Asn Leu Leu Gln Ser Gln Thr Asp Leu				
1114	1119	1124	1129	

agc atc cct caa atg gca cag ctg ctt aac atc cac tcc aac cca gag	3578
Ser Ile Pro Gln Met Ala Gln Leu Leu Asn Ile His Ser Asn Pro Glu	
1130 1135 1140 1145	
atg cag cag cag ctg gaa gcc ctg aac caa tcc atc agt gcc ctg acg	3626
Met Gln Gln Gln Leu Glu Ala Leu Asn Gln Ser Ile Ser Ala Leu Thr	
1146 1151 1156 1161	
gaa gct act tcc cag cag cag gac tca gag acc atg gcc cca gag gag	3674
Glu Ala Thr Ser Gln Gln Gln Asp Ser Glu Thr Met Ala Pro Glu Glu	
1162 1167 1172 1177	
tct ttg aag gaa gca ccc tct gcc cca gtg atc ctg cct tca gca gaa	3722
Ser Leu Lys Glu Ala Pro Ser Ala Pro Val Ile Leu Pro Ser Ala Glu	
1178 1183 1188 1193	
cag atg acc ctt gaa gct tca agc aca cca gct gac atg cag aat ata	3770
Gln Met Thr Leu Glu Ala Ser Ser Thr Pro Ala Asp Met Gln Asn Ile	
1194 1199 1204 1209	
ttg gca gtt ctc ttg agt cag ctg atg aaa acc caa gag cca gca ggc	3818
Leu Ala Val Leu Leu Ser Gln Leu Met Lys Thr Gln Glu Pro Ala Gly	
1210 1215 1220 1225	
agt ctg gag gaa aac aac agt gac aag aac agt ggg cca cag ggg ccc	3866
Ser Leu Glu Glu Asn Asn Ser Asp Lys Asn Ser Gly Pro Gln Gly Pro	
1226 1231 1236 1241	
cga aga act ccc aca atg cca cag gag gag gca gca gca tgt cct cct	3914
Arg Arg Thr Pro Thr Met Pro Gln Glu Glu Ala Ala Ala Cys Pro Pro	
1242 1247 1252 1257	
cac att ctt cca cca gag aag agg ccc cct gag ccc ccc gga cct cca	3962
His Ile Leu Pro Pro Glu Lys Arg Pro Pro Glu Pro Pro Gly Pro Pro	
1258 1263 1268 1273	
ccg ccg cca cct cca ccc cct ctg gtt gaa ggc gat ctt tcc agc gcc	4010
Pro Pro Pro Pro Pro Pro Pro Leu Val Glu Gly Asp Leu Ser Ser Ala	
1274 1279 1284 1289	
ccc cag gag ttg aac cca gcc gtg aca gcc gcc ttg ctg caa ctt tta	4058
Pro Gln Glu Leu Asn Pro Ala Val Thr Ala Ala Leu Leu Gln Leu Leu	
1290 1295 1300 1305	
tcc cag cct gaa gca gag cct cct ggc cac ctg cca cat gag cac cag	4106
Ser Gln Pro Glu Ala Glu Pro Pro Gly His Leu Pro His Glu His Gln	
1306 1311 1316 1321	
gcc ttg aga cca atg gag tac tcc acc cga ccc cgt cca aac agg act	4154
Ala Leu Arg Pro Met Glu Tyr Ser Thr Arg Pro Arg Pro Asn Arg Thr	
1322 1327 1332 1337	
tat gga aac act gat ggg cct gaa aca ggg ttc agt gcc att gac act	4202
Tyr Gly Asn Thr Asp Gly Pro Glu Thr Gly Phe Ser Ala Ile Asp Thr	
1338 1343 1348 1353	

gat gaa cga aac tct ggt cca gcc ttg aca gaa tcc ttg gtc cag acc 4250  
 Asp Glu Arg Asn Ser Gly Pro Ala Leu Thr Glu Ser Leu Val Gln Thr  
 1354 1359 1364 1369

ctg gtg aag aac agg acc ttc tca ggc tct ctg agc cac ctt ggg gag 4298  
 Leu Val Lys Asn Arg Thr Phe Ser Gly Ser Leu Ser His Leu Gly Glu  
 1370 1375 1380 1385

tcc agc agt tac cag ggc aca ggg tag gagca acggtgggaa tgccctctga 4350  
 Ser Ser Ser Tyr Gln Gly Thr Gly \*  
 1386 1391

ggaatgcagt gatgtccatc agtcacctct caccagagc ctggcaaatt cagtctcttt 4410

cacagaacct aaagccaagc caggttcagt gggaaatccc acctgtccaa aactgtgtgt 4470

agacaccaga attagaggcc tgcaagcctg cttccttcat ccccaatgcc cagatgggac 4530

aggtcaccag cctcctgtgc taccaccacc tttcttgett gctg 4574

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ggttctgect accccgagac tgctgctgtt cggagacctg caggtgaatg ccccatcacc 120

atg tct gac ctg gag gca aaa ctt tca act gag cat ttg ggg gat aag 168  
 Met Ser Asp Leu Glu Ala Lys Leu Ser Thr Glu His Leu Gly Asp Lys  
 1 5 10 15

ata aaa gat gaa gat att aaa ctc agg gtt att gga cag gat agc agt 216  
 Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp Ser Ser  
 17 22 27 32

gag att cat ttc aaa gtg aaa atg aca aca cct ctc aag aaa ctc aag 264  
 Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys Leu Lys  
 33 38 43 48

aaa tcg tac tgt cag aga cag ggc gtt cca gtg aat tcc ctc agg ttt 312  
 Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu Arg Phe  
 49 54 59 64

ctc ttt gaa ggt cag aga att gct gat aat cat act cca gaa gaa ctg 360  
 Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu Glu Leu  
 65 70 75 80

gga atg gag gaa gaa gat gtg att gag gtt tat cag gaa caa atc gga 408  
 Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln Ile Gly  
 81 86 91 96

ggt cat tca aca gtt tag 426  
 Gly His Ser Thr Val \*  
 97 102

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 atg cct cac caa aga cct aga acg tgc gcc atg aac ccg gag ctg aca 106  
 Met Pro His Gln Arg Pro Arg Thr Cys Ala Met Asn Pro Glu Leu Thr  
 1 5 10 15

atg gaa agt ctg ggc act ttg cac ggc gcg cgc ggc ggc ggc agt ggc 154  
 Met Glu Ser Leu Gly Thr Leu His Gly Ala Arg Gly Gly Gly Ser Gly  
 17 22 27 32

ggg ggc ggc ggc ggg ggc ggc ggg ggc ggc ggc ggc ggc ccg ggc cat 202  
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Pro Gly His  
 33 38 43 48

gag cag gag ctg ctg gcc agc ccc agc ccc cac cac gcg cgc cgc ggc 250  
 Glu Gln Glu Leu Leu Ala Ser Pro Ser Pro His His Ala Arg Arg Gly  
 49 54 59 64

ccg cgt ggc tcg ctg cgg ggc cct ccg ccg cct cca acc gcg cac cag 298  
 Pro Arg Gly Ser Leu Arg Gly Pro Pro Pro Pro Pro Thr Ala His Gln  
 65 70 75 80

gag ctg ggc acg gcg gca gcg gcg gca gcg gcg gcg tcg cgc tcg gcc 346  
 Glu Leu Gly Thr Ala Ala Ala Ala Ala Ala Ala Ala Ser Arg Ser Ala  
 81 86 91 96

atg gtc acc agc atg gcc tcg atc ctg gac ggc ggc gac tac cgg ccc 394  
 Met Val Thr Ser Met Ala Ser Ile Leu Asp Gly Gly Asp Tyr Arg Pro  
 97 102 107 112

gag ctc tcc atc ccg ctg cac cac gcc atg agc atg tcc tgc gac tcg 442  
 Glu Leu Ser Ile Pro Leu His His Ala Met Ser Met Ser Cys Asp Ser  
 113 118 123 128

tct ccg cct ggc atg gcc atg agc aac acc tac acc acg ctg aca ccg 490  
 Ser Pro Pro Gly Met Gly Met Ser Asn Thr Tyr Thr Thr Leu Thr Pro



129	134	139	144	
ctc cag ccg ctg cca ccc atc tcc acc gtg tct gac aag ttc cac cac				538
Leu Gln Pro Leu Pro Pro Ile Ser Thr Val Ser Asp Lys Phe His His				
145	150	155	160	
cct cac ccg cac cac cat ccg cac cac cac cac cac cac cac cag				586
Pro His Pro His His His Pro His His His His His His His His Gln				
161	166	171	176	
cgc ctg tcc ggc aac gtc agc ggc agc ttc acc ctc atg cgc gac gag				634
Arg Leu Ser Gly Asn Val Ser Gly Ser Phe Thr Leu Met Arg Asp Glu				
177	182	187	192	
cgc ggg ctc ccg gcc atg aac aac ctc tac agt ccc tac aag gag atg				682
Arg Gly Leu Pro Ala Met Asn Asn Leu Tyr Ser Pro Tyr Lys Glu Met				
193	198	203	208	
ccc ggc atg agc cag agc ctg tcc ccg ctg gcc gcc acg ccg ctg ggc				730
Pro Gly Met Ser Gln Ser Leu Ser Pro Leu Ala Ala Thr Pro Leu Gly				
209	214	219	224	
aac ggg cta ggc ggc ctc cac aac gcg cag cag agt ctg ccc aac tac				778
Asn Gly Leu Gly Gly Leu His Asn Ala Gln Gln Ser Leu Pro Asn Tyr				
225	230	235	240	
ggt ccg ccg ggc cac gac aaa atg ctc agc ccc aac ttc gac gcg cac				826
Gly Pro Pro Gly His Asp Lys Met Leu Ser Pro Asn Phe Asp Ala His				
241	246	251	256	
cac act gcc atg ctg acc cgc ggt gag caa cac ctg tcc cgc ggc ctg				874
His Thr Ala Met Leu Thr Arg Gly Glu Gln His Leu Ser Arg Gly Leu				
257	262	267	272	
ggc acc cca cct gcg gcc atg atg tcg cac ctg aac ggc ctg cac cac				922
Gly Thr Pro Pro Ala Ala Met Met Ser His Leu Asn Gly Leu His His				
273	278	283	288	
ccg ggc cac act cag tct cac ggg ccg gtg ctg gca ccc agt cgc gag				970
Pro Gly His Thr Gln Ser His Gly Pro Val Leu Ala Pro Ser Arg Glu				
289	294	299	304	
cgg cca ccc tcg tcc tca tcg ggc tcg cag gtg gcc acg tcg ggc cag				1018
Arg Pro Pro Ser Ser Ser Ser Gly Ser Gln Val Ala Thr Ser Gly Gln				
305	310	315	320	
ctg gaa gaa atc aac acc aaa gag gtg gcc cag cgc atc aca gcg gag				1066
Leu Glu Glu Ile Asn Thr Lys Glu Val Ala Gln Arg Ile Thr Ala Glu				
321	326	331	336	
ctg aag cgc tac agt atc ccc cag gcg atc ttt gcg cag agg gtg ctg				1114
Leu Lys Arg Tyr Ser Ile Pro Gln Ala Ile Phe Ala Gln Arg Val Leu				
337	342	347	352	
tgc cgg tct cag ggg act ctc tcc gac ctg ctc cgg aat cca aaa ccg				1162
Cys Arg Ser Gln Gly Thr Leu Ser Asp Leu Leu Arg Asn Pro Lys Pro				
353	358	363	368	

tgg agt aaa ctc aaa tct ggc agg gag acc ttc cgc agg atg tgg aag	1210
Trp Ser Lys Leu Lys Ser Gly Arg Glu Thr Phe Arg Arg Met Trp Lys	
369 374 379 384	
tgg ctt cag gag ccc gag ttc cag cgc atg tcc gcc tta cgc ctg gca	1258
Trp Leu Gln Glu Pro Glu Phe Gln Arg Met Ser Ala Leu Arg Leu Ala	
385 390 395 400	
gcg tgc aaa cgc aaa gag caa gaa cca aac aaa gac agg aac aat tcc	1306
Ala Cys Lys Arg Lys Glu Gln Glu Pro Asn Lys Asp Arg Asn Asn Ser	
401 406 411 416	
cag aag aag tcc cgc ctg gtg ttc act gac ctc caa cgc cga aca ctc	1354
Gln Lys Lys Ser Arg Leu Val Phe Thr Asp Leu Gln Arg Arg Thr Leu	
417 422 427 432	
ttc gcc atc ttc aag gag aac aaa cgc ccg tca aag gag atg cag atc	1402
Phe Ala Ile Phe Lys Glu Asn Lys Arg Pro Ser Lys Glu Met Gln Ile	
433 438 443 448	
acc att tcc cag cag ctg ggc ctg gag ctc aca acc gtc agc aac ttc	1450
Thr Ile Ser Gln Gln Leu Gly Leu Glu Leu Thr Thr Val Ser Asn Phe	
449 454 459 464	
ttc atg aac gcc cgg cgc cgc agc ctg gag aag tgg caa gac gat ctg	1498
Phe Met Asn Ala Arg Arg Arg Ser Leu Glu Lys Trp Gln Asp Asp Leu	
465 470 475 480	
agc aca ggg ggc tcc tcg tcc acc tcc agc acg tgt acc aaa gca tga	1546
Ser Thr Gly Gly Ser Ser Ser Thr Ser Ser Thr Cys Thr Lys Ala *	
481 486 491 496	
tggaaggact ctcaacttggg cacaagtcac ctccaaatga ggacaacaga taccaaaaga	1606
aaacaaagga aaaagacacc ggattcctag ctggggccct tcaactggtga tttgaaagca	1666
caattctctt gcaaagaaac ttatatctcta gctgtaatca taggccaggt gttcttcttt	1726
tgtttttaat ggctatggag tccaagtgca agctgaaaaa ttaatctctt agaaccagac	1786
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<223> n = a,t,c or g

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cttggttccc	cctccctcag	cttccgcccc	aaaagcagaa	gtagaaagta	atgaaaagga	180
caacagacct	gaggaagaag	agcaagtaat	acatgaagat	gatgaaagac	cttctgagaa	240
aaatgaattt	tctagacgaa	aacgttctaa	atcagaagac	atg gac aat gta cag	295	
				Met Asp Asn Val Gln		
				1		
tct aaa cgt cgt cga tat atg gaa gaa gaa tat gag gca gaa ttt caa	343					
Ser Lys Arg Arg Arg Tyr Met Glu Glu Glu Tyr Glu Ala Glu Phe Gln						
6 11 16 21						
gta aag att aca gcc aaa gga gac att aac cag aaa ctt caa aag gtt	391					
Val Lys Ile Thr Ala Lys Gly Asp Ile Asn Gln Lys Leu Gln Lys Val						
22 27 32 37						
ata cag tgg ttg ctg gaa gaa aaa ttg tgt gcg ctg cag tgt gct gta	439					
Ile Gln Trp Leu Leu Glu Glu Lys Leu Cys Ala Leu Gln Cys Ala Val						
38 43 48 53						
ttt gat aag act ttg gca gaa ttg aaa aca cga gtg gaa aag att gaa	487					
Phe Asp Lys Thr Leu Ala Glu Leu Lys Thr Arg Val Glu Lys Ile Glu						
54 59 64 69						
tgt aac aag agg cat aaa aca gtt ctc act gaa cta cag gcc aag ata	535					
Cys Asn Lys Arg His Lys Thr Val Leu Thr Glu Leu Gln Ala Lys Ile						
70 75 80 85						
gcc agg tta acc aaa cgc ttt gaa gca gcc aaa gaa gat ctt aag aaa	583					
Ala Arg Leu Thr Lys Arg Phe Glu Ala Ala Lys Glu Asp Leu Lys Lys						
86 91 96 101						
aga cat gaa cat cca ccc aac cca cca gta tca cca gga aaa act gta	631					
Arg His Glu His Pro Asn Pro Pro Val Ser Pro Gly Lys Thr Val						
102 107 112 117						
aat gat gtc aac agc aat aat aac atg tct tac aga aat gca ggc aca	679					
Asn Asp Val Asn Ser Asn Asn Asn Met Ser Tyr Arg Asn Ala Gly Thr						
118 123 128 133						
gtg aga cag atg ctg gag tcc aaa aga aat gta agc gag agt gca cca	727					
Val Arg Gln Met Leu Glu Ser Lys Arg Asn Val Ser Glu Ser Ala Pro						
134 139 144 149						
cca tcc ttt caa act cct gtg aat aca gta tct tca acc aat ctt gtc	775					
Pro Ser Phe Gln Thr Pro Val Asn Thr Val Ser Ser Thr Asn Leu Val						
150 155 160 165						
act cct cca gca gtt gtc agt agt caa cct aaa ttg cag act cca gtg	823					

Thr	Pro	Pro	Ala	Val	Val	Ser	Ser	Gln	Pro	Lys	Leu	Gln	Thr	Pro	Val		
166					171					176					181		
act	tcg	ggt	tcc	ctc	aca	gca	acg	tca	gtt	ctt	cct	gca	ccc	aat	aca	871	
Thr	Ser	Gly	Ser	Leu	Thr	Ala	Thr	Ser	Val	Leu	Pro	Ala	Pro	Asn	Thr		
182					187					192					197		
gct	act	gta	gtt	gct	act	act	cag	gtg	cct	agt	gga	aat	ccc	cag	cct	919	
Ala	Thr	Val	Val	Ala	Thr	Thr	Gln	Val	Pro	Ser	Gly	Asn	Pro	Gln	Pro		
198					203					208					213		
aca	atc	tct	tta	cag	cct	ttg	cca	gtg	att	ttg	cat	gta	cct	gtt	gca	967	
Thr	Ile	Ser	Leu	Gln	Pro	Leu	Pro	Val	Ile	Leu	His	Val	Pro	Val	Ala		
214					219					224					229		
gta	tcc	tcc	cag	cct	cag	ctt	cta	cag	agc	cat	cca	ggg	act	ttg	gtg	1015	
Val	Ser	Ser	Gln	Pro	Gln	Leu	Leu	Gln	Ser	His	Pro	Gly	Thr	Leu	Val		
230					235					240					245		
act	aat	caa	cca	tct	ggc	aat	gtt	gaa	ttc	att	tct	gtg	caa	agc	cca	1063	
Thr	Asn	Gln	Pro	Ser	Gly	Asn	Val	Glu	Phe	Ile	Ser	Val	Gln	Ser	Pro		
246					251					256					261		
cct	aca	gtg	agt	ggt	ctt	acc	aaa	aat	cca	gta	tcc	ttg	cca	tcc	ttg	1111	
Pro	Thr	Val	Ser	Gly	Leu	Thr	Lys	Asn	Pro	Val	Ser	Leu	Pro	Ser	Leu		
262					267					272					277		
cca	aat	ccc	act	aaa	cca	aac	aac	gtt	cct	tct	gtg	ccc	agt	cct	agt	1159	
Pro	Asn	Pro	Thr	Lys	Pro	Asn	Asn	Val	Pro	Ser	Val	Pro	Ser	Pro	Ser		
278					283					288					293		
att	caa	agg	aac	cct	act	gcc	agt	gct	gca	cca	ttg	gga	aca	aca	ctt	1207	
Ile	Gln	Arg	Asn	Pro	Thr	Ala	Ser	Ala	Ala	Pro	Leu	Gly	Thr	Thr	Leu		
294					299					304					309		
gct	gtg	cag	gct	gtt	cca	aca	gca	cac	tct	att	gta	caa	gcc	aca	agg	1255	
Ala	Val	Gln	Ala	Val	Pro	Thr	Ala	His	Ser	Ile	Val	Gln	Ala	Thr	Arg		
310					315					320					325		
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Thr	Ser	Leu	Pro	Thr	Val	Gly	Pro	Ser	Gly	Leu	Tyr	Ser	Pro	Ser	Thr		
326					331					336					341		
aat	cga	ggt	cct	ata	cag	atg	aaa	att	cca	att	tct	gca	ttt	agt	act	1351	
Asn	Arg	Gly	Pro	Ile	Gln	Met	Lys	Ile	Pro	Ile	Ser	Ala	Phe	Ser	Thr		
342					347					352					357		
tcg	tct	gct	gca	gaa	cag	aac	agc	aat	acc	acc	cca	aga	att	gaa	aac	1399	
Ser	Ser	Ala	Ala	Glu	Gln	Asn	Ser	Asn	Thr	Thr	Pro	Arg	Ile	Glu	Asn		
358					363					368					373		
cag	aca	aac	aaa	aca	ata	gat	gct	tct	gtc	agt	aag	aaa	gca	gct	gat	1447	
Gln	Thr	Asn	Lys	Thr	Ile	Asp	Ala	Ser	Val	Ser	Lys	Lys	Ala	Ala	Asp		
374					379					384					389		
agc	aca	tca	cag	tgt	gga	aaa	gcc	act	ggc	agt	gat	tca	agt	ggt	gtc	1495	
Ser	Thr	Ser	Gln	Cys	Gly	Lys	Ala	Thr	Gly	Ser	Asp	Ser	Ser	Gly	Val		

390		395		400		405	
att gat ctc aca atg	gat gat gaa gag agt	gga gct tca caa gac ccc	1543				
Ile Asp Leu Thr Met	Asp Asp Glu Glu Ser	Gly Ala Ser Gln Asp Pro					
406	411	416	421				
aaa aaa cta aat cac	act cct gta tca acc	atg agt tct tct cag cct	1591				
Lys Lys Leu Asn His	Thr Pro Val Ser Thr	Met Ser Ser Ser Gln Pro					
422	427	432	437				
gtg tca cga cca ttg	caa ccc ata caa cca	gca ccg cct ctt caa cca	1639				
Val Ser Arg Pro Leu	Gln Pro Ile Gln Pro	Ala Pro Pro Leu Gln Pro					
438	443	448	453				
tct ggg gtg cca aca	agt gga cca tct cag	acc acc ata cac tta cta	1687				
Ser Gly Val Pro Thr	Ser Gly Pro Ser Gln	Thr Thr Ile His Leu Leu					
454	459	464	469				
cct aca gct cca act	acc gtg aat gta aca	cat cgt cca gta act cag	1735				
Pro Thr Ala Pro Thr	Thr Val Asn Val Thr	His Arg Pro Val Thr Gln					
470	475	480	485				
gtg acc aca aga ctc	cct gta cca aga gct	cct gca aac cac cag gtg	1783				
Val Thr Thr Arg Leu	Pro Val Pro Arg Ala	Pro Ala Asn His Gln Val					
486	491	496	501				
gtt tat aca act ctt	cct gca cca cca gct	cag gct ccc ttg cga gga	1831				
Val Tyr Thr Thr Leu	Pro Ala Pro Pro Ala	Gln Ala Pro Leu Arg Gly					
502	507	512	517				
act gtt atg cag gct	cct gct gtt cgg cag	gtc aat ccc caa aat agt	1879				
Thr Val Met Gln Ala	Pro Ala Val Arg Gln	Val Asn Pro Gln Asn Ser					
518	523	528	533				
gtt aca gtt cga gtg	cct caa aca acc aca	tat gtt gta aac aat gga	1927				
Val Thr Val Arg Val	Pro Gln Thr Thr Thr	Tyr Val Val Asn Asn Gly					
534	539	544	549				
cta acc ctg gga tca	aca gga cct cag ctc	aca gtg cat cac cga cca	1975				
Leu Thr Leu Gly Ser	Thr Gly Pro Gln Leu	Thr Val His His Arg Pro					
550	555	560	565				
cca caa gtg cat act	gag ccc cca cgc ccc	gtg cac cca gca ccc tta	2023				
Pro Gln Val His Thr	Glu Pro Pro Arg Pro	Val His Pro Ala Pro Leu					
566	571	576	581				
cca gaa gct cca caa	cca cag cgt ctg ccc	cca gaa gct gcc agc aca	2071				
Pro Glu Ala Pro Gln	Pro Gln Arg Leu Pro	Pro Glu Ala Ala Ser Thr					
582	587	592	597				
tct ctg cct cag aag	cca cac ttg aag tta	gca cgc gtt cag agt caa	2119				
Ser Leu Pro Gln Lys	Pro His Leu Lys Leu	Ala Arg Val Gln Ser Gln					
598	603	608	613				
aat ggc ata gta ctg	tca tgg agt gtc ctg	gag gtg gat cga agc tgt	2167				
Asn Gly Ile Val Leu	Ser Trp Ser Val Leu	Glu Val Asp Arg Ser Cys					
614	619	624	629				

gcc act gtt gat agc tac cat ctc tat gct tac cat gag gaa ccc agt	2215
Ala Thr Val Asp Ser Tyr His Leu Tyr Ala Tyr His Glu Glu Pro Ser	
630 635 640 645	
gcc act gtg ccc tca caa tgg aaa aag att ggg gaa gtc aag gca ctt	2263
Ala Thr Val Pro Ser Gln Trp Lys Lys Ile Gly Glu Val Lys Ala Leu	
646 651 656 661	
ccc ttg ccc atg gca tgt act ctc acc cag ttt gta tct ggt agc aaa	2311
Pro Leu Pro Met Ala Cys Thr Leu Thr Gln Phe Val Ser Gly Ser Lys	
662 667 672 677	
tac tac ttt gca gta cga gcc aag gat att tat gga cgt ttt ggg cct	2359
Tyr Tyr Phe Ala Val Arg Ala Lys Asp Ile Tyr Gly Arg Phe Gly Pro	
678 683 688 693	
ttc tgt gat cct cag tca aca gat gtg atc tct tct acc cag agc agt	2407
Phe Cys Asp Pro Gln Ser Thr Asp Val Ile Ser Ser Thr Gln Ser Ser	
694 699 704 709	
taa acct tggagccttt atattttcct ctttttaaaat ttccaccttt tgggtcttgtt	2464
*	
710	
tttaatcttg tgcattgatac cccatgtaaa atccaccttg tgcaagattt cttggacaga	2524
tgtgtgtata cactacattt gtttataacc agaagcaaaa taaactcagc ccacaaagct	2584
agaatctttt cctggacagt ttaggctttg gggtttgga atgtaaatgt gtaccttgct	2644
ttagttttga ggctggggaa tatgtgtggg tgtttatgtg tgtttttcct tatgtagggtg	2704
ttattgcatt ggagtctccc attttcattc tcaaatttac ctcttaaagt acgaagtaag	2764
tagatcaaag gatttgagat gtgtaactgg catgattctg cttttgaagg atctatagta	2824
tcatttttagt taagtgggtc aaacagaatc aaaacaaaac ccaaagaaaa aaaaaacaaa	2884
atggctaaat agttttaa at aggttaattc gaacacagga aaggatctat ttgttggttc	2944
ttttgtctgg tctcctgagt tgttaattag gtgaaaaaag atctgcaatg gccccctccc	3004
tttccctaac tggcttttac atttattttg tgccttaaag attaactaca aagataaaca	3064
tggccaaaaa taaataaata aatatggcca tatgtccgnt gttgcttagt cttcccttgc	3124
agccttttac ccttgatttc tccttcattc ctaccaaata tagcacaact cctcaagtaa	3184
tttttttttt ttgaaatgga gttttgctct tgttgcccag gctggaaagg cgggg	3239

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<213> Homo sapiens

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<222> (314)..(1144)

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ccacgcaggt cttctttgat catctagaac tgaccgctcc gccttgccag gagtctgcag 120

aaccacgtgg ctagcctgcc tgaagttctc acctctccag gaaggcgggg ggttttcta 180

ggctgcagct gcgctggggg ctgggggctc ccgctgggac tccacttccg tggatgtcta 240

agcttcacct ttcttgccgc cgcaggggca tgactcaggt gaaagggagc cattttctca 300

gacccctggc ctc atg cag ccc ttc agc atc ccc gtg caa atc aca ctt 349

Met Gln Pro Phe Ser Ile Pro Val Gln Ile Thr Leu

1

5

10

cag ggc agc cgg agg cgc cag ggg agg aca gcc ttt cct gcc tca ggg 397

Gln Gly Ser Arg Arg Arg Gln Gly Arg Thr Ala Phe Pro Ala Ser Gly

13

18

23

28

aag aag aga gag aca gac tac agt gat gga gac cca cta gat gtg cac 445

Lys Lys Arg Glu Thr Asp Tyr Ser Asp Gly Asp Pro Leu Asp Val His

29

34

39

44

aag agg ctg cca tcc agt act gga gag gac cga gcc gtg atg ctg ggg 493

Lys Arg Leu Pro Ser Ser Thr Gly Glu Asp Arg Ala Val Met Leu Gly

45

50

55

60

ttt gcc atg atg ggc ttc tca gtc cta atg ttc ttc ttg ctc gga aca 541

Phe Ala Met Met Gly Phe Ser Val Leu Met Phe Phe Leu Leu Gly Thr

61

66

71

76

acc att cta aag cct ttt atg ctc agc att cag aga gaa gaa tcg acc 589

Thr Ile Leu Lys Pro Phe Met Leu Ser Ile Gln Arg Glu Glu Ser Thr

77

82

87

92

tgc act gcc atc cac aca gat atc atg gac gac tgg ctg gac tgt gcc 637

Cys Thr Ala Ile His Thr Asp Ile Met Asp Asp Trp Leu Asp Cys Ala

93

98

103

108

ttc acc tgt ggt gtg cac tgc cac ggt cag ggg aag tac cca tgt ctt 685

Phe Thr Cys Gly Val His Cys His Gly Gln Gly Lys Tyr Pro Cys Leu

109

114

119

124

cag gtg ttt gtg aac ctc agc cat cca ggt cag aaa got ctc cta cat 733

Gln Val Phe Val Asn Leu Ser His Pro Gly Gln Lys Ala Leu Leu His

125

130

135

140

tat aat gaa gag gct gtc cag ata aat ccc aag tgc ttt tac aca cct 781

Tyr Asn Glu Glu Ala Val Gln Ile Asn Pro Lys Cys Phe Tyr Thr Pro

141

146

151

156

aag tgc cac caa gat	aga aat gat ttg ctc aac agt gct ctg gac ata	829
Lys Cys His Gln Asp	Arg Asn Asp Leu Leu Asn Ser Ala Leu Asp Ile	
157	162 167 172	
aaa gaa ttc ttc gat	cac aaa aat gga act ccc ttt tca tgc ttc tac	877
Lys Glu Phe Phe Asp	His Lys Asn Gly Thr Pro Phe Ser Cys Phe Tyr	
173	178 183 188	
agt cca gcc agc caa tct	gaa gat gtc att ctt ata aaa aag tat gac	925
Ser Pro Ala Ser Gln	Ser Glu Asp Val Ile Leu Ile Lys Lys Tyr Asp	
189	194 199 204	
caa atg gct atc ttc	cac tgt tta ttt tgg cct tca ctg act ctg cta	973
Gln Met Ala Ile Phe	His Cys Leu Phe Trp Pro Ser Leu Thr Leu Leu	
205	210 215 220	
ggt ggt gcc ctg att	gtt ggc atg gtg aga tta aca caa cac ctg tcc	1021
Gly Gly Ala Leu Ile	Val Gly Met Val Arg Leu Thr Gln His Leu Ser	
221	226 231 236	
tta ctg tgt gaa aaa	tat agc act gta gtc aga gat gag gta ggt gga	1069
Leu Leu Cys Glu Lys	Tyr Ser Thr Val Val Arg Asp Glu Val Gly Gly	
237	242 247 252	
aaa gta cct tat ata	gaa cag cat cag ttc aaa ctg tgc att atg agg	1117
Lys Val Pro Tyr Ile	Glu Gln His Gln Phe Lys Leu Cys Ile Met Arg	
253	258 263 268	
agg agc aaa gga aga	gca gag aaa tct	1144
Arg Ser Lys Gly Arg	Ala Glu Lys Ser	
269	274	

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actagtccag tgtggtggaa ttcgccctga gcgtctcc	
atg gcc tgc ctg agc	113
Met Ala Cys Leu Ser	
1	
ccc tgc cag ctc cag aag ttc caa cag gat gga ttc ctg gtg ctg gaa	161
Pro Ser Gln Leu Gln Lys Phe Gln Gln Asp Gly Phe Leu Val Leu Glu	
6 11 16 21	
gga ttc ttg tct gcg gaa gag tgt gtg gcc atg caa caa agg att ggc	209



Gly	Phe	Leu	Ser	Ala	Glu	Glu	Cys	Val	Ala	Met	Gln	Gln	Arg	Ile	Gly		
22					27					32					37		
gag	ata	gtg	gct	gaa	atg	gat	gtt	cct	ctc	cac	tgc	cgc	aca	gaa	ttc	257	
Glu	Ile	Val	Ala	Glu	Met	Asp	Val	Pro	Leu	His	Cys	Arg	Thr	Glu	Phe		
38					43					48					53		
tcc	acc	cag	gaa	gag	gag	cag	ctt	cga	gcc	cag	ggc	agc	aca	gac	tat	305	
Ser	Thr	Gln	Glu	Glu	Glu	Gln	Leu	Arg	Ala	Gln	Gly	Ser	Thr	Asp	Tyr		
54					59					64					69		
ttc	ttg	agc	agt	ggt	gac	aag	att	cga	ttc	ttc	ttt	gag	aaa	ggc	gtt	353	
Phe	Leu	Ser	Ser	Gly	Asp	Lys	Ile	Arg	Phe	Phe	Phe	Glu	Lys	Gly	Val		
70					75					80					85		
ttt	gat	gag	aaa	gga	aat	ttc	ctg	gtc	cct	cgc	gag	aaa	tcc	atc	aac	401	
Phe	Asp	Glu	Lys	Gly	Asn	Phe	Leu	Val	Pro	Pro	Glu	Lys	Ser	Ile	Asn		
86					91					96					101		
aaa	att	ggc	cac	gct	ctg	cac	gcc	cac	gac	ccc	gtc	ttc	aag	agc	atc	449	
Lys	Ile	Gly	His	Ala	Leu	His	Ala	His	Asp	Pro	Val	Phe	Lys	Ser	Ile		
102					107					112					117		
aca	cac	tcc	ttc	aag	gtg	cag	acc	ttg	gcc	aga	agt	ctg	ggc	ctc	cag	497	
Thr	His	Ser	Phe	Lys	Val	Gln	Thr	Leu	Ala	Arg	Ser	Leu	Gly	Leu	Gln		
118					123					128					133		
atg	ccc	gtg	gtg	gtg	cag	agc	atg	tac	atc	ttt	aag	caa	cct	cac	ttt	545	
Met	Pro	Val	Val	Val	Gln	Ser	Met	Tyr	Ile	Phe	Lys	Gln	Pro	His	Phe		
134					139					144					149		
ggc	ggt	gaa	gtc	tcc	cct	cat	cag	gac	gcc	tcc	ttc	ctg	tac	acg	gag	593	
Gly	Gly	Glu	Val	Ser	Pro	His	Gln	Asp	Ala	Ser	Phe	Leu	Tyr	Thr	Glu		
150					155					160					165		
ccc	ctg	ggc	cgg	gtg	ctg	ggc	gtg	tgg	atc	gca	gtg	gag	gat	gcc	acg	641	
Pro	Leu	Gly	Arg	Val	Leu	Gly	Val	Trp	Ile	Ala	Val	Glu	Asp	Ala	Thr		
166					171					176					181		
ctg	gag	aac	ggc	tgt	ctc	tgg	ttc	atc	cct	ggc	tcc	cac	acc	agt	ggt	689	
Leu	Glu	Asn	Gly	Cys	Leu	Trp	Phe	Ile	Pro	Gly	Ser	His	Thr	Ser	Gly		
182					187					192					197		
gtg	tca	aga	agg	atg	gtc	cgg	gcc	cct	gtt	ggc	tca	gcg	cct	ggt	acc	737	
Val	Ser	Arg	Arg	Met	Val	Arg	Ala	Pro	Val	Gly	Ser	Ala	Pro	Gly	Thr		
198					203					208					213		
agc	ttc	ctt	ggg	tca	gag	cca	gcc	cgg	gat	aac	agc	ctc	ttt	gtg	ccc	785	
Ser	Phe	Leu	Gly	Ser	Glu	Pro	Ala	Arg	Asp	Asn	Ser	Leu	Phe	Val	Pro		
214					219					224					229		
acc	cca	gtg	cag	aga	ggg	gcc	ctg	gtc	ctc	atc	cat	gga	gaa	gtg	gta	833	
Thr	Pro	Val	Gln	Arg	Gly	Ala	Leu	Val	Leu	Ile	His	Gly	Glu	Val	Val		
230					235					240					245		
cac	aag	agc	aag	cag	aac	ctc	tct	gac	cgc	tcg	cgc	cag	gcc	tac	act	881	
His	Lys	Ser	Lys	Gln	Asn	Leu	Ser	Asp	Arg	Ser	Arg	Gln	Ala	Tyr	Thr		

246	251	256	261	
ttc cac ctc atg gag gcc tct ggc acc acc tgg agc ccg gag aac tgg				929
Phe His Leu Met Glu Ala Ser Gly Thr Thr Trp Ser Pro Glu Asn Trp				
262	267	272	277	
ctc cag cca aca gct gaa ctg ccc ttt ccc caa ctg tac acc taa agg				977
Leu Gln Pro Thr Ala Glu Leu Pro Phe Pro Gln Leu Tyr Thr *				
278	283	288		
ctctcgcagg gcaggagccc tcgccctccc cgggtgaagc tgtgggctgt aaacaccagt				1037
gccttgctca gcctcctggt tgcaacaggg aggtcttgtc tccccctctg ggctttcctc				1097
ctgccctgtg ggcagcagcc taggctgggt caggggcttc cctaagatct tcacctctct				1157
gcctccctac tgccccaaca tagccttgag gaggtctctc agccaccaaa gggttctggc				1217
cccttctcac tctcctctcc tctcagatgg aactctgggtt attatggtgt tagttatcga				1277
ataaaaaacga cttcagaatg caaaaaaaaaaaa aaa				1310

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 <211> 707  
 <212> DNA  
 <213> Homo sapiens

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gcagcattct gggatatttc ttccttcaag gagtcacagt ggttcacatg ggtcaaggca	120
aagacaggtc tcttgccaag gcacccaaga tgaaatcttg aaa atg aga aac aca	175
Met Arg Asn Thr	
1	
ttt gct gaa ctg aag aat tca tta gag gct ctc agc agt aga atg gac	223
Phe Ala Glu Leu Lys Asn Ser Leu Glu Ala Leu Ser Ser Arg Met Asp	
5 10 15 20	
cag gca gag gaa aga att ggg acc cag gct gga gtg cag tgg cgt gat	271
Gln Ala Glu Glu Arg Ile Gly Thr Gln Ala Gly Val Gln Trp Arg Asp	
21 26 31 36	
cat ggc tca ctg cag cct caa cct cct gaa ttc aag caa tgc ttc cac	319
His Gly Ser Leu Gln Pro Gln Pro Pro Glu Phe Lys Gln Cys Phe His	
37 42 47 52	
ctc agt ctc cca agt agc tgg gac tac agg gcg tgc ctt tct tag agc	367
Leu Ser Leu Pro Ser Ser Trp Asp Tyr Arg Ala Cys Leu Ser *	

53

58

63

aatcctgggtg ccactaaaag ctgcattttc aatatgagat aaaaatgtat ttacaaaaa 427  
gtgcaaggtc ttcattgtctg ctggcattgc tgcaacagtg gcttgtgtga gagatcactt 487  
tttacggcaa tacccaattt attggagaga caaactgctc aagcaaggat gattagcatt 547  
ctatggcatt ttaaaaggat acttgcaatg cttgacctta ccacaatagc aacaggagggt 607  
agctacaaaa ttattacaat agtagagtat ggtaccacag ttaattttat gtagctataa 667  
tttaatactg catctttaat gttgttcaca tttctctgga 707

<210> 329  
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<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
<221> misc\_feature  
<222> (1)..(929)  
<223> n = a,t,c or g

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ctgaattccc gggctgaccc acgcgtccgc gcgtcgggca gcgggcgagg cggccccgag 60  
cagccatgga ctggctc atg ggg aag tcc aaa gcc aag ccc aat ggc aag 110  
Met Gly Lys Ser Lys Ala Lys Pro Asn Gly Lys  
1 5  
aag ccc gct gcg gag gag agg aag gcc tac ctg gag cct gag cac acc 158  
Lys Pro Ala Ala Glu Glu Arg Lys Ala Tyr Leu Glu Pro Glu His Thr  
12 17 22 27  
aag gcc agg atc acc gac ttc cag ttc aag gag ctg gtg gtg ctg ccc 206  
Lys Ala Arg Ile Thr Asp Phe Gln Phe Lys Glu Leu Val Val Leu Pro  
28 33 38 43  
cgc gag att gac ctt aac gag tgg ctg gcc agc aac acc acg acg ttt 254  
Arg Glu Ile Asp Leu Asn Glu Trp Leu Ala Ser Asn Thr Thr Thr Phe  
44 49 54 59  
ttc cac cac atc aac ctg cag tat agc acc atc tcg gag ttc tgc aca 302  
Phe His His Ile Asn Leu Gln Tyr Ser Thr Ile Ser Glu Phe Cys Thr  
60 65 70 75  
gga gag acg tgt cag acg atg gcc gtg tgc aac aca cag tac tac tgg 350  
Gly Glu Thr Cys Gln Thr Met Ala Val Cys Asn Thr Gln Tyr Tyr Trp  
76 81 86 91

tat gac gag cgg ggg aag aag gtc aag tgc acg gcc cca cag tac gtt	398
Tyr Asp Glu Arg Gly Lys Lys Val Lys Cys Thr Ala Pro Gln Tyr Val	
92 97 102 107	
gac ttc gtc atg agc tcc gtg cag aag ctg gtg acg gat gag gac gtg	446
Asp Phe Val Met Ser Ser Val Gln Lys Leu Val Thr Asp Glu Asp Val	
108 113 118 123	
ttc ccc aca aaa tac ggc aga gaa ttc ccc agc tcc ttt gag tcc ctg	494
Phe Pro Thr Lys Tyr Gly Arg Glu Phe Pro Ser Ser Phe Glu Ser Leu	
124 129 134 139	
gtg agg aag atc tgc aga cac ctg ttc cac gtg ctg gca cac atc tac	542
Val Arg Lys Ile Cys Arg His Leu Phe His Val Leu Ala His Ile Tyr	
140 145 150 155	
tgg gcc cac ttc aag gag acg ctg gcc ctg gag ctg cac gga cac ttg	590
Trp Ala His Phe Lys Glu Thr Leu Ala Leu Glu Leu His Gly His Leu	
156 161 166 171	
aac acg ctc tac gtc cac ttc atc ctc ttt gct cgg gag ttc aac ctg	638
Asn Thr Leu Tyr Val His Phe Ile Leu Phe Ala Arg Glu Phe Asn Leu	
172 177 182 187	
ctg gac ccc aaa gag acc gcc atc atg gac gac ctc acc gag gtg cta	686
Leu Asp Pro Lys Glu Thr Ala Ile Met Asp Asp Leu Thr Glu Val Leu	
188 193 198 203	
tgc agc ggg gcc ggc ggg gtc cac agt ggg ggc agt ggg gat ggg gcc	734
Cys Ser Gly Ala Gly Gly Val His Ser Gly Gly Ser Gly Asp Gly Ala	
204 209 214 219	
ggc agc ggg ggc ccg gga gca cag aac cac gtg aag gag aga tga gcc	782
Gly Ser Gly Gly Pro Gly Ala Gln Asn His Val Lys Glu Arg *	
220 225 230	
ccccgggccg gacaggggca cacgtgtgca aagagacggt ggtgtgtgtt ctctcctgca	842
tctgcgtgtn cacacatgtg ctgggcacgc gtgtggcgag gacttgcagg gccccggact	902
gacctggtgt gtggctgcat aatcacg	929

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<220>  
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 <222> (894) .. (1724)

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 catggagctg cccgcgcggg cgggggacgc agtccggagt cccgcgcgcg ccgcgcacct 180  
 catcttcccc gggggctccg gggagctaga actggcggtta gaggaggagc tggcgctgct 240  
 ggcggccggg ggagcggccg tccgaccccg gggaacaccc tcaggccgag cctgggtctc 300  
 tggccgaggg ggccggaccg cagccgcgcg cctcccagga ccccgagctg ctgtcggtga 360  
 tccgacagaa ggagaaggat ctggtgttgg cggcccggtt gggtaaggcg ctgctcgaga 420  
 ggaaccagga catgagccgg cagtacgagc agatgcataa ggagctgaca gacaagctcg 480  
 agcacttaga gcaagagaaa catgaattga gaagacgatt tgagaaccga gaaggggagt 540  
 gggaaggccg agtgtcagag ctggagagtg atgtgaagca gctacaggat gagttggaga 600  
 ggcagcagat tcatctgcgg gaagcagatc gagaaaaatc acgggctgtc caggaactgt 660  
 cggacagaa ccaaaggcta ttggatcagc tcagcaggaa aattaagact tggatttact 720  
 attctacctc agcccttctt gtatattgaa aataaaaacta ccaactcttc agttaccgga 780  
 ggaaaaagaa cttctctgat atcatccctc agcactgatg ttctcatggg agcagtgcgc 840  
 tgtctgcatg gtctcctctg tttcaggcat cagaagttga gagacaactc tcc atg 896  
 Met  
 1  
 cag gtc cac gcc ctc aga gaa gac ttt cgg gag aaa aac tca tca acc 944  
 Gln Val His Ala Leu Arg Glu Asp Phe Arg Glu Lys Asn Ser Ser Thr  
 2 7 12 17  
 aac cag cac att atc cgg ctg gag agc ctt cag gcc gag atc aag atg 992  
 Asn Gln His Ile Ile Arg Leu Glu Ser Leu Gln Ala Glu Ile Lys Met  
 18 23 28 33  
 ctg tca gat cgg aaa cgg gag ctg gag cat cgt ctc agc gct act tta 1040  
 Leu Ser Asp Arg Lys Arg Glu Leu Glu His Arg Leu Ser Ala Thr Leu  
 34 39 44 49  
 gag gaa aat gac ctg ctc caa ggg acc gtg gag gag cta cag gac cgg 1088  
 Glu Glu Asn Asp Leu Leu Gln Gly Thr Val Glu Glu Leu Gln Asp Arg  
 50 55 60 65  
 gtg cta atc ctg gag agg cag ggc cat gac aag gac cta cag ctg cac 1136  
 Val Leu Ile Leu Glu Arg Gln Gly His Asp Lys Asp Leu Gln Leu His  
 66 71 76 81  
 caa agc cag ctg gag ctt cag gag gtg cgt ctc tcc tgc cga cag ctg 1184  
 Gln Ser Gln Leu Glu Leu Gln Glu Val Arg Leu Ser Cys Arg Gln Leu  
 82 87 92 97  
 cag gtg aag gtg gaa gaa ctc act gag gag agg agt ctg cag agc tct 1232  
 Gln Val Lys Val Glu Glu Leu Thr Glu Glu Arg Ser Leu Gln Ser Ser

98	103	108	113	
gcc gcc acc agc aca tcc ctc ctg tca gag atc gag cag agc atg gag				1280
Ala Ala Thr Ser Thr Ser Leu Leu Ser Glu Ile Glu Gln Ser Met Glu				
114	119	124	129	
gct gag gag ctg gag cag gag cga gag cag gtg aca ctg ctg agt gtg				1328
Ala Glu Glu Leu Glu Gln Glu Arg Glu Gln Val Thr Leu Leu Ser Val				
130	135	140	145	
gag atg act gcc cta aaa gag gag aga gac cga ctc aga gtc act tct				1376
Glu Met Thr Ala Leu Lys Glu Glu Arg Asp Arg Leu Arg Val Thr Ser				
146	151	156	161	
gag gac aag gag cca aag gag cag ctt cag aag gcc atc agg gac cgc				1424
Glu Asp Lys Glu Pro Lys Glu Gln Leu Gln Lys Ala Ile Arg Asp Arg				
162	167	172	177	
gac gag gcc att gca aag aag aat gct gtg gag ctg gaa ctt gcc aag				1472
Asp Glu Ala Ile Ala Lys Lys Asn Ala Val Glu Leu Glu Leu Ala Lys				
178	183	188	193	
tgc agg atg gat atg atg tct ctg aac agc cag ttg ctg gat gcc att				1520
Cys Arg Met Asp Met Met Ser Leu Asn Ser Gln Leu Leu Asp Ala Ile				
194	199	204	209	
cag cag aaa ctg aac ctc tgc cag cag ctg gaa gct tgg cag gat gac				1568
Gln Gln Lys Leu Asn Leu Ser Gln Gln Leu Glu Ala Trp Gln Asp Asp				
210	215	220	225	
atg cac agg gtc att gac cgg cag ctg atg gac acg cac ctg aaa gaa				1616
Met His Arg Val Ile Asp Arg Gln Leu Met Asp Thr His Leu Lys Glu				
226	231	236	241	
cgg agc cag ccg gct gct gcc ctc tgc agg ggc cac agc gct ggg cgg				1664
Arg Ser Gln Pro Ala Ala Ala Leu Cys Arg Gly His Ser Ala Gly Arg				
242	247	252	257	
ggg gat gag ccc agc atc gct gaa ggc aaa cga ctc ttc tca ttc ttc				1712
Gly Asp Glu Pro Ser Ile Ala Glu Gly Lys Arg Leu Phe Ser Phe Phe				
258	263	268	273	
agg aaa att taa gtt gggaggagtc aggccaccaa agatgggtgg actggaggca				1767
Arg Lys Ile *				
274				
gctggaaaagg cgggtgcaggc aaggcctccc ctgcagcttg cacctcagca gctgccctgc				1827
ccctcatgct agggcccat gggtcggga gggcctgctc cctttcgtcg gtggggatgg				1887
agacctagag gtgggggcct gccttgcca ctgaaggctt cccttgccc accgcctgga				1947
gaagcccagg cgtgggcttc tccaggacca cgtgcttgag cagggttagg ccacctccca				2007
gaggggcccc ttggtgttg gctttgcagc tcacacccaa cagatcgag cccaccccca				2067
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 1 5 10  
 gtt ggt ggc agc aga cct ggg cag aca ctt aga gga agt gtc caa aat 96  
 Val Gly Gly Ser Arg Pro Gly Gln Thr Leu Arg Gly Ser Val Gln Asn  
 17 22 27 32  
 aaa ctc aat ccc cga cct gga aag gta gtg ata tat agt gaa ccc gac 144  
 Lys Leu Asn Pro Arg Pro Gly Lys Val Val Ile Tyr Ser Glu Pro Asp  
 33 38 43 48  
 gtc tct gag aag tgc att gaa gtt ttc agt gac att cag gat tgc agt 192  
 Val Ser Glu Lys Cys Ile Glu Val Phe Ser Asp Ile Gln Asp Cys Ser  
 49 54 59 64  
 tct tgg agc ctc tct cca gtg ata ctc ata aaa gtt gtt aga gga tgt 240  
 Ser Trp Ser Leu Ser Pro Val Ile Leu Ile Lys Val Val Arg Gly Cys  
 65 70 75 80  
 tgg att ttg tat gag caa cca aat ttt gaa ggg cac tcc atc ccc tta 288  
 Trp Ile Leu Tyr Glu Gln Pro Asn Phe Glu Gly His Ser Ile Pro Leu  
 81 86 91 96  
 gaa gaa gga gaa ttg gaa ctc tct ggt ctc tgg ggt ata gaa gac att 336

Glu	Glu	Gly	Glu	Leu	Glu	Leu	Ser	Gly	Leu	Trp	Gly	Ile	Glu	Asp	Ile	
97					102					107					112	
gtg	gaa	agg	cac	gaa	gaa	gca	gag	tct	gat	aag	cca	gtg	gtg	att	ggg	384
Val	Glu	Arg	His	Glu	Glu	Ala	Glu	Ser	Asp	Lys	Pro	Val	Val	Ile	Gly	
113					118					123					128	
tcc	atc	aga	cat	gtg	gtt	cag	gat	tac	aga	gtt	agt	cac	att	gac	tta	432
Ser	Ile	Arg	His	Val	Val	Gln	Asp	Tyr	Arg	Val	Ser	His	Ile	Asp	Leu	
129					134					139					144	
ttt	act	gaa	cca	gaa	ggg	ttt	gga	atc	cta	agt	tcc	tac	ttt	gat	gat	480
Phe	Thr	Glu	Pro	Glu	Gly	Leu	Gly	Ile	Leu	Ser	Ser	Tyr	Phe	Asp	Asp	
145					150					155					160	
act	gaa	gaa	atg	cag	gga	ttt	ggg	gta	atg	cag	aag	act	tgt	tcc	atg	528
Thr	Glu	Glu	Met	Gln	Gly	Phe	Gly	Val	Met	Gln	Lys	Thr	Cys	Ser	Met	
161					166					171					176	
aaa	gta	cat	tgg	ggc	acg	tgg	ctg	att	tat	gaa	gaa	cct	gga	ttt	cag	576
Lys	Val	His	Trp	Gly	Thr	Trp	Leu	Ile	Tyr	Glu	Glu	Pro	Gly	Phe	Gln	
177					182					187					192	
ggg	gtt	cct	ttc	atc	ctg	gaa	cct	ggg	gaa	tac	cct	gac	ttg	tcc	ttc	624
Gly	Val	Pro	Phe	Ile	Leu	Glu	Pro	Gly	Glu	Tyr	Pro	Asp	Leu	Ser	Phe	
193					198					203					208	
tgg	gat	aca	gaa	gca	gcg	tac	att	gga	tcc	atg	cgg	cct	ctg	aaa	atg	672
Trp	Asp	Thr	Glu	Ala	Ala	Tyr	Ile	Gly	Ser	Met	Arg	Pro	Leu	Lys	Met	
209					214					219					224	
ggg	ggc	cgt	aaa	gtt	gaa	ttc	cct	aca	gat	cca	aag	tcc	aga	gca	caa	720
Gly	Gly	Arg	Lys	Val	Glu	Phe	Pro	Thr	Asp	Pro	Lys	Ser	Arg	Ala	Gln	
225					230					235					240	
cct	cca	gaa	gac	aac	aga	agg	aag	cca	gtt	ttg	ggg	aaa	ott	ggc	act	768
Pro	Pro	Glu	Asp	Asn	Arg	Arg	Lys	Pro	Val	Leu	Gly	Lys	Leu	Gly	Thr	
241					246					251					256	
cta	ttc	act	gca	gga	agg	aga	aga	aac	agt	aga	aac	ggg	tta	gag	agt	816
Leu	Phe	Thr	Ala	Gly	Arg	Arg	Arg	Asn	Ser	Arg	Asn	Gly	Leu	Glu	Ser	
257					262					267					272	
ccc	acc	aga	tca	aac	gcc	aaa	cca	ctc	tct	ccc	aaa	gat	gtg	gta	gcc	864
Pro	Thr	Arg	Ser	Asn	Ala	Lys	Pro	Leu	Ser	Pro	Lys	Asp	Val	Val	Ala	
273					278					283					288	
tct	cct	aag	ctc	cca	gag	aga	gag	agt	gag	agg	agc	aga	tct	cag	agc	912
Ser	Pro	Lys	Leu	Pro	Glu	Arg	Glu	Ser	Glu	Arg	Ser	Arg	Ser	Gln	Ser	
289					294					299					304	
agc	caa	ctg	aag	caa	acg	gac	aca	agc	gag	gag	ggc	tcc	ccg	cgg	gag	960
Ser	Gln	Leu	Lys	Gln	Thr	Asp	Thr	Ser	Glu	Glu	Gly	Ser	Pro	Arg	Glu	
305					310					315					320	
aat	ccc	cga	gag	gca	gag	ggc	gag	ctc	ccc	gag	agc	ggg	ggc	ccc	gca	1008
Asn	Pro	Arg	Glu	Ala	Glu	Gly	Glu	Leu	Pro	Glu	Ser	Gly	Gly	Pro	Ala	



321	326	331	336	
gcc ccc cct gac gcc gag ctg tca cct cgc tgg agc agc agt gca gcg				1056
Ala Pro Pro Asp Ala Glu Leu Ser Pro Arg Trp Ser Ser Ser Ala Ala				
337	342	347	352	
gct gtg gct gtg cag cag tgc cat gaa aat gat tca ccc caa tta gaa				1104
Ala Val Ala Val Gln Gln Cys His Glu Asn Asp Ser Pro Gln Leu Glu				
353	358	363	368	
cct ctg gag gca gag gga gag cct ttc cca gat gcc acc acc act gcc				1152
Pro Leu Glu Ala Glu Gly Glu Pro Phe Pro Asp Ala Thr Thr Thr Ala				
369	374	379	384	
aag cag ctg cat tcc tcg ccg gga aat tcc tcc agg caa gag aac gca				1200
Lys Gln Leu His Ser Ser Pro Gly Asn Ser Ser Arg Gln Glu Asn Ala				
385	390	395	400	
gag acg ccc gcc cgc agt ccg ggg gag gac gct tca cca ggt gct ggc				1248
Glu Thr Pro Ala Arg Ser Pro Gly Glu Asp Ala Ser Pro Gly Ala Gly				
401	406	411	416	
cac gaa cag gag gct ttc ctg ggt gtg agg ggt gcg cca ggg tcg ccc				1296
His Glu Gln Glu Ala Phe Leu Gly Val Arg Gly Ala Pro Gly Ser Pro				
417	422	427	432	
acc cag gag cgg ccc gcg gga gga cta ggc gag gcc cct aac gca gcc				1344
Thr Gln Glu Arg Pro Ala Gly Gly Leu Gly Glu Ala Pro Asn Ala Ala				
433	438	443	448	
ccc agt gtg tgt gcc gaa gaa ggc tcc ctg ggg ccc cgc aac gcc cgc				1392
Pro Ser Val Cys Ala Glu Glu Gly Ser Leu Gly Pro Arg Asn Ala Arg				
449	454	459	464	
agc cag ccc ccc aag ggc gcg tct gat ttg cca ggt gag cct ccg gcc				1440
Ser Gln Pro Pro Lys Gly Ala Ser Asp Leu Pro Gly Glu Pro Pro Ala				
465	470	475	480	
gag ggc gca gcg cac acg gcc agc tcc gcg cag gca gac tgc aca gcc				1488
Glu Gly Ala Ala His Thr Ala Ser Ser Ala Gln Ala Asp Cys Thr Ala				
481	486	491	496	
cgc ccc aag ggt cac gcc cac cct gct aag gtg cta act ttg gac atc				1536
Arg Pro Lys Gly His Ala His Pro Ala Lys Val Leu Thr Leu Asp Ile				
497	502	507	512	
tac ttg agt aag act gag ggg gca caa gtg gac gag ccg gtc gtg att				1584
Tyr Leu Ser Lys Thr Glu Gly Ala Gln Val Asp Glu Pro Val Val Ile				
513	518	523	528	
act ccc aga gcg gaa gat tgc ggt gac tgg gac gac atg gag aag agg				1632
Thr Pro Arg Ala Glu Asp Cys Gly Asp Trp Asp Asp Met Glu Lys Arg				
529	534	539	544	
tcc agc ggc cgt agg tcg ggg agg cgg agg ggg tcg cag aaa tcc acc				1680
Ser Ser Gly Arg Arg Ser Gly Arg Arg Arg Gly Ser Gln Lys Ser Thr				
545	550	555	560	



aaa acc cct aag aat ctt gac agt ttg gga aat gag cac aat cca ttt	2400
Lys Thr Pro Lys Asn Leu Asp Ser Leu Gly Asn Glu His Asn Pro Phe	
785 790 795 800	
agc cag cca gtt cac aaa ggc aac act gcc acc aaa atc tcc tta ttt	2448
Ser Gln Pro Val His Lys Gly Asn Thr Ala Thr Lys Ile Ser Leu Phe	
801 806 811 816	
gaa aac aaa cgg aca aac agt agc cca aga cac act gac att cga ggc	2496
Glu Asn Lys Arg Thr Asn Ser Ser Pro Arg His Thr Asp Ile Arg Gly	
817 822 827 832	
caa agg aat act cct gcc tct agt aaa acg ttt gtt ggg agg gca aag	2544
Gln Arg Asn Thr Pro Ala Ser Ser Lys Thr Phe Val Gly Arg Ala Lys	
833 838 843 848	
ctg aat tta gcc aaa aaa gcc aaa gaa atg gag caa cct gaa aag aaa	2592
Leu Asn Leu Ala Lys Lys Ala Lys Glu Met Glu Gln Pro Glu Lys Lys	
849 854 859 864	
gta atg cca aac agt ccc cag aat ggt gtg ctg gtt aag gaa act gct	2640
Val Met Pro Asn Ser Pro Gln Asn Gly Val Leu Val Lys Glu Thr Ala	
865 870 875 880	
ata gaa acc aaa gtt acc gtc tcg gaa gaa gag att ctg cca gca acc	2688
Ile Glu Thr Lys Val Thr Val Ser Glu Glu Glu Ile Leu Pro Ala Thr	
881 886 891 896	
aga gga atg aat gga gac tct tct gag aat caa gct ctt ggt cct cag	2736
Arg Gly Met Asn Gly Asp Ser Ser Glu Asn Gln Ala Leu Gly Pro Gln	
897 902 907 912	
cct aac caa gat gat aaa gca gat gta caa aca gat gct ggc tgc ctt	2784
Pro Asn Gln Asp Asp Lys Ala Asp Val Gln Thr Asp Ala Gly Cys Leu	
913 918 923 928	
tca gaa cca gtg gct tct gct ctg att cct gtc aag gat cat aag ctc	2832
Ser Glu Pro Val Ala Ser Ala Leu Ile Pro Val Lys Asp His Lys Leu	
929 934 939 944	
tta gag aag gag gac tca gag gct gca gac agc aaa agc ctt gta ctt	2880
Leu Glu Lys Glu Asp Ser Glu Ala Ala Asp Ser Lys Ser Leu Val Leu	
945 950 955 960	
gaa aat gta acc gat aca gca caa gac atc ccc acc act gtg gat acc	2928
Glu Asn Val Thr Asp Thr Ala Gln Asp Ile Pro Thr Thr Val Asp Thr	
961 966 971 976	
aaa gat tta cct cca acg gcc atg cca aag cca cag cat aca ttt tct	2976
Lys Asp Leu Pro Pro Thr Ala Met Pro Lys Pro Gln His Thr Phe Ser	
977 982 987 992	
gac tca cag tcc cct gct gag tca tct cct ggg cct tct ctt tca ctg	3024
Asp Ser Gln Ser Pro Ala Glu Ser Ser Pro Gly Pro Ser Leu Ser Leu	
993 998 1003 1008	
tct gca ccc gct cct ggg gat gtt ccc aaa gac aca tgt gtt caa tca	3072



1233	1238	1243	1248	
agc gca gtt tgt atg ccc atg aaa aga aag aag gcc agg atg cca aac				3792
Ser Ala Val Cys Met Pro Met Lys Arg Lys Lys Ala Arg Met Pro Asn				
1249	1254	1259	1264	
tct cct gct cct cac ttt gcc atg cct cct att cac gaa gac cat tta				3840
Ser Pro Ala Pro His Phe Ala Met Pro Pro Ile His Glu Asp His Leu				
1265	1270	1275	1280	
gaa aag gtg ttt gat ccc aaa gtg ttt acc ttt ggt ttg ggg aag aag				3888
Glu Lys Val Phe Asp Pro Lys Val Phe Thr Phe Gly Leu Gly Lys Lys				
1281	1286	1291	1296	
aag gaa agt cag cca gaa atg tca ccg gct tta cat ttg atg cag aac				3936
Lys Glu Ser Gln Pro Glu Met Ser Pro Ala Leu His Leu Met Gln Asn				
1297	1302	1307	1312	
ctt gac aca aaa tcc aaa ctg aga ccc aaa cgt gca tct gct gaa cag				3984
Leu Asp Thr Lys Ser Lys Leu Arg Pro Lys Arg Ala Ser Ala Glu Gln				
1313	1318	1323	1328	
agc gtc ctc ttc aag tcc ctg cac acc aac act aat ggg aac agt gag				4032
Ser Val Leu Phe Lys Ser Leu His Thr Asn Thr Asn Gly Asn Ser Glu				
1329	1334	1339	1344	
cct ctg gtg atg ccg gaa atc aat gac aaa gag aac agg gac gtc aca				4080
Pro Leu Val Met Pro Glu Ile Asn Asp Lys Glu Asn Arg Asp Val Thr				
1345	1350	1355	1360	
aat ggt ggc att aag aga tcg aga cta gaa aaa agt gca ctt ttc tca				4128
Asn Gly Gly Ile Lys Arg Ser Arg Leu Glu Lys Ser Ala Leu Phe Ser				
1361	1366	1371	1376	
agc ttg tta tct tct tta cca caa gac aaa atc ttt tct cct tct gtg				4176
Ser Leu Leu Ser Ser Leu Pro Gln Asp Lys Ile Phe Ser Pro Ser Val				
1377	1382	1387	1392	
aca tca gtc aac act atg acc acg gct ttc agt act tct cag aac ggt				4224
Thr Ser Val Asn Thr Met Thr Thr Ala Phe Ser Thr Ser Gln Asn Gly				
1393	1398	1403	1408	
tcc cta tct cag tct tca gtg tca cag ccc acg act gag ggt gcc ccg				4272
Ser Leu Ser Gln Ser Ser Val Ser Gln Pro Thr Thr Glu Gly Ala Pro				
1409	1414	1419	1424	
ccc tgt ggt ttg aac aaa gaa cag tca aat ctt ctg ccc gac aac tcc				4320
Pro Cys Gly Leu Asn Lys Glu Gln Ser Asn Leu Leu Pro Asp Asn Ser				
1425	1430	1435	1440	
tta aag gtc ttc aat ttc aac tcg tca agt aca tca cac tcc agt ttg				4368
Leu Lys Val Phe Asn Phe Asn Ser Ser Ser Thr Ser His Ser Ser Leu				
1441	1446	1451	1456	
aaa agt cca agc cac atg gaa aaa tac ccg caa aaa gag aaa acc aaa				4416
Lys Ser Pro Ser His Met Glu Lys Tyr Pro Gln Lys Glu Lys Thr Lys				
1457	1462	1467	1472	

gaa gat ctg gat tca cga agc aac cta cac ttg cca gaa act aaa ttt	4464
Glu Asp Leu Asp Ser Arg Ser Asn Leu His Leu Pro Glu Thr Lys Phe	
1473 1478 1483 1488	
tct gaa ttg tca aaa ctg aag aat gat gat atg gaa aag gct aat cat	4512
Ser Glu Leu Ser Lys Leu Lys Asn Asp Asp Met Glu Lys Ala Asn His	
1489 1494 1499 1504	
att gaa agt gtt att aaa tca aac ttg cca aac tgt gca aac agt gac	4560
Ile Glu Ser Val Ile Lys Ser Asn Leu Pro Asn Cys Ala Asn Ser Asp	
1505 1510 1515 1520	
acc gac ttc atg ggt ctt ttc aaa tca agc cgg tat gac cca agc att	4608
Thr Asp Phe Met Gly Leu Phe Lys Ser Ser Arg Tyr Asp Pro Ser Ile	
1521 1526 1531 1536	
tct ttt tct gga atg tca tta tca gac aca atg aca ctt aga gga agt	4656
Ser Phe Ser Gly Met Ser Leu Ser Asp Thr Met Thr Leu Arg Gly Ser	
1537 1542 1547 1552	
gtc caa aat aaa ctc aat ccc cga cct gga aag gta gtg ata tat agt	4704
Val Gln Asn Lys Leu Asn Pro Arg Pro Gly Lys Val Val Ile Tyr Ser	
1553 1558 1563 1568	
gaa ccc gac gtc tct gag aag tgc att gaa gtt ttc agt gac att cag	4752
Glu Pro Asp Val Ser Glu Lys Cys Ile Glu Val Phe Ser Asp Ile Gln	
1569 1574 1579 1584	
gat tgc agt tct tgg agc ctc tct cca gtg ata ctc ata aaa gtt gtt	4800
Asp Cys Ser Ser Trp Ser Leu Ser Pro Val Ile Leu Ile Lys Val Val	
1585 1590 1595 1600	
aga gga tgt tgg att ttg tat gag caa cca aat ttt gaa ggg cac tcc	4848
Arg Gly Cys Trp Ile Leu Tyr Glu Gln Pro Asn Phe Glu Gly His Ser	
1601 1606 1611 1616	
atc ccc tta gaa gaa gga gaa ttg gaa ctc tct ggt ctc tgg ggt ata	4896
Ile Pro Leu Glu Glu Gly Glu Leu Glu Leu Ser Gly Leu Trp Gly Ile	
1617 1622 1627 1632	
gaa gac att ttg gaa agg cac gaa gaa gca gag tct gat aag cca gtg	4944
Glu Asp Ile Leu Glu Arg His Glu Glu Ala Glu Ser Asp Lys Pro Val	
1633 1638 1643 1648	
gtg att ggt tcc atc aga cat gtg gtt cag gat tac aga gtt agt cac	4992
Val Ile Gly Ser Ile Arg His Val Val Gln Asp Tyr Arg Val Ser His	
1649 1654 1659 1664	
att gac tta ttt act gaa cca gaa ggg tta gga atc cta agt tcc tac	5040
Ile Asp Leu Phe Thr Glu Pro Glu Gly Leu Gly Ile Leu Ser Ser Tyr	
1665 1670 1675 1680	
ttt gat gat act gaa gaa atg cag gga ttt ggt gta atg cag aag act	5088
Phe Asp Asp Thr Glu Glu Met Gln Gly Phe Gly Val Met Gln Lys Thr	
1681 1686 1691 1696	

tgt tcc atg aaa gta cat tgg ggc acg tgg ctg att tat gaa gaa cct	5136
Cys Ser Met Lys Val His Trp Gly Thr Trp Leu Ile Tyr Glu Glu Pro	
1697 1702 1707 1712	
gga ttt cag ggt gtt cct ttc atc ctg gaa cct ggt gaa tac cct gac	5184
Gly Phe Gln Gly Val Pro Phe Ile Leu Glu Pro Gly Glu Tyr Pro Asp	
1713 1718 1723 1728	
ttg tcc ttc tgg gat aca gaa gca gcg tac att gga tcc atg cgg cct	5232
Leu Ser Phe Trp Asp Thr Glu Ala Ala Tyr Ile Gly Ser Met Arg Pro	
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ctg aaa atg ggt ggc cgt aaa gtt gaa ttc cct aca gat cca aag gta	5280
Leu Lys Met Gly Gly Arg Lys Val Glu Phe Pro Thr Asp Pro Lys Val	
1745 1750 1755 1760	
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Val Val Tyr Glu Lys Pro Phe Phe Glu Gly Lys Cys Val Glu Leu Glu	
1761 1766 1771 1776	
aca gga atg tgt agt ttt gtc atg gag gga ggt gaa aca gaa gag gcg	5376
Thr Gly Met Cys Ser Phe Val Met Glu Gly Gly Glu Thr Glu Glu Ala	
1777 1782 1787 1792	
act gga gac gat cat ttg ccg ttt acg tca gtg ggg tct atg aaa gtt	5424
Thr Gly Asp Asp His Leu Pro Phe Thr Ser Val Gly Ser Met Lys Val	
1793 1798 1803 1808	
cta aga ggc att tgg gtt gca tat gag aag cct gga ttt acc ggt cat	5472
Leu Arg Gly Ile Trp Val Ala Tyr Glu Lys Pro Gly Phe Thr Gly His	
1809 1814 1819 1824	
cag tat ttg cta gaa gaa gga gaa tac agg gac tgg aaa gcc tgg gga	5520
Gln Tyr Leu Leu Glu Glu Gly Glu Tyr Arg Asp Trp Lys Ala Trp Gly	
1825 1830 1835 1840	
ggg tac aat gga gag ctt cag tct tta cga cct ata tta ggt gat ttt	5568
Gly Tyr Asn Gly Glu Leu Gln Ser Leu Arg Pro Ile Leu Gly Asp Phe	
1841 1846 1851 1856	
tca aat gct cac atg ata atg tac agt gaa aaa aac ttt gga tcc aaa	5616
Ser Asn Ala His Met Ile Met Tyr Ser Glu Lys Asn Phe Gly Ser Lys	
1857 1862 1867 1872	
ggg tcc agt att gat gta ttg gga att gtt gct aat tta aag gag act	5664
Gly Ser Ser Ile Asp Val Leu Gly Ile Val Ala Asn Leu Lys Glu Thr	
1873 1878 1883 1888	
gga tat gga gtg aag aca cag tct att aat gta ctg agt gga gta tgg	5712
Gly Tyr Gly Val Lys Thr Gln Ser Ile Asn Val Leu Ser Gly Val Trp	
1889 1894 1899 1904	
gta gcc tat gaa aat cct gac ttc aca gga gaa cag tat ata ctg gat	5760
Val Ala Tyr Glu Asn Pro Asp Phe Thr Gly Glu Gln Tyr Ile Leu Asp	
1905 1910 1915 1920	
aaa gga ttt tat acc agt ttt gag gac tgg gga ggc aaa aat tat aag	5808

Lys	Gly	Phe	Tyr	Thr	Ser	Phe	Glu	Asp	Trp	Gly	Gly	Lys	Asn	Tyr	Lys	
1921					1926					1931					1936	
atc	tct	tct	gtt	caa	cct	ata	tgt	ttg	gat	tct	ttc	act	ggc	cca	agg	5856
Ile	Ser	Ser	Val	Gln	Pro	Ile	Cys	Leu	Asp	Ser	Phe	Thr	Gly	Pro	Arg	
1937					1942					1947					1952	
aga	cga	aat	cag	att	cac	ttg	ttt	tca	gaa	cca	cag	ttt	caa	ggc	cac	5904
Arg	Arg	Asn	Gln	Ile	His	Leu	Phe	Ser	Glu	Pro	Gln	Phe	Gln	Gly	His	
1953					1958					1963					1968	
agt	caa	agt	ttt	gaa	gaa	aca	aca	agt	caa	att	gat	gat	tca	ttt	tct	5952
Ser	Gln	Ser	Phe	Glu	Glu	Thr	Thr	Ser	Gln	Ile	Asp	Asp	Ser	Phe	Ser	
1969					1974					1979					1984	
acc	aag	tct	tgc	aga	gtt	tca	gga	ggc	agc	tgg	gtt	gta	tat	gat	gga	6000
Thr	Lys	Ser	Cys	Arg	Val	Ser	Gly	Gly	Ser	Trp	Val	Val	Tyr	Asp	Gly	
1985					1990					1995					2000	
gaa	aat	ttc	act	ggc	aat	caa	tac	gtg	ttg	gaa	gaa	ggc	cat	tat	cct	6048
Glu	Asn	Phe	Thr	Gly	Asn	Gln	Tyr	Val	Leu	Glu	Glu	Gly	His	Tyr	Pro	
2001					2006					2011					2016	
tgt	ctg	tct	gca	atg	gga	tgc	ccg	cct	gga	gca	act	ttc	aag	tct	ctt	6096
Cys	Leu	Ser	Ala	Met	Gly	Cys	Pro	Pro	Gly	Ala	Thr	Phe	Lys	Ser	Leu	
2017					2022					2027					2032	
cgt	ttt	ata	gat	gtt	gaa	ttt	tct	gaa	cca	aca	att	att	ctc	ttt	gaa	6144
Arg	Phe	Ile	Asp	Val	Glu	Phe	Ser	Glu	Pro	Thr	Ile	Ile	Leu	Phe	Glu	
2033					2038					2043					2048	
aga	gaa	gac	ttc	aaa	gga	aaa	aag	att	gaa	ctt	aat	gca	gaa	act	gtc	6192
Arg	Glu	Asp	Phe	Lys	Gly	Lys	Lys	Ile	Glu	Leu	Asn	Ala	Glu	Thr	Val	
2049					2054					2059					2064	
aat	ctc	cga	tcc	ctg	gga	ttc	aac	aca	caa	ata	cgc	tct	gtt	cag	gtt	6240
Asn	Leu	Arg	Ser	Leu	Gly	Phe	Asn	Thr	Gln	Ile	Arg	Ser	Val	Gln	Val	
2065					2070					2075					2080	
att	ggc	ggc	ata	tgg	gtt	act	tat	gaa	tat	ggc	agt	tac	aga	ggg	cga	6288
Ile	Gly	Gly	Ile	Trp	Val	Thr	Tyr	Glu	Tyr	Gly	Ser	Tyr	Arg	Gly	Arg	
2081					2086					2091					2096	
cag	ttc	cta	ttg	tca	cct	gca	gaa	gta	cct	aat	tgg	tat	gaa	ttc	agt	6336
Gln	Phe	Leu	Leu	Ser	Pro	Ala	Glu	Val	Pro	Asn	Trp	Tyr	Glu	Phe	Ser	
2097					2102					2107					2112	
ggc	tgt	cgc	caa	ata	ggc	tct	cta	cga	cct	ttt	gtt	cag	aag	cga	att	6384
Gly	Cys	Arg	Gln	Ile	Gly	Ser	Leu	Arg	Pro	Phe	Val	Gln	Lys	Arg	Ile	
2113					2118					2123					2128	
tat	ttc	aga	ctt	cga	aac	aaa	gca	aca	ggg	tta	ttc	atg	tca	acc	aat	6432
Tyr	Phe	Arg	Leu	Arg	Asn	Lys	Ala	Thr	Gly	Leu	Phe	Met	Ser	Thr	Asn	
2129					2134					2139					2144	
gga	aac	tta	gag	gat	ctg	aag	ctt	ctg	agg	ata	cag	gtc	atg	gag	gat	6480
Gly	Asn	Leu	Glu	Asp	Leu	Lys	Leu	Leu	Arg	Ile	Gln	Val	Met	Glu	Asp	



2145	2150	2155	2160	
gtc ggg gcc gat gat cag att tgg atc tat caa gaa gga tgt atc aaa				6528
Val Gly Ala Asp Asp Gln Ile Trp Ile Tyr Gln Glu Gly Cys Ile Lys				
2161	2166	2171	2176	
tgc agg ata gca gaa gac tgc tgc ctg acg att gtg ggc agc ctg gta				6576
Cys Arg Ile Ala Glu Asp Cys Cys Leu Thr Ile Val Gly Ser Leu Val				
2177	2182	2187	2192	
aca tct ggc tcc aag cta ggc ctg gcc ctg gac cag aat gct gac agc				6624
Thr Ser Gly Ser Lys Leu Gly Leu Ala Leu Asp Gln Asn Ala Asp Ser				
2193	2198	2203	2208	
cag ttc tgg agc ttg aag tcc gat ggc agg att tac agc aag ttg aag				6672
Gln Phe Trp Ser Leu Lys Ser Asp Gly Arg Ile Tyr Ser Lys Leu Lys				
2209	2214	2219	2224	
cca aat tta gtt tta gac att aaa ggg ggc aca cag tat gat caa aat				6720
Pro Asn Leu Val Leu Asp Ile Lys Gly Gly Thr Gln Tyr Asp Gln Asn				
2225	2230	2235	2240	
cac att atc ctc aac act gtc agc aaa gag aag ttt aca caa gtg tgg				6768
His Ile Ile Leu Asn Thr Val Ser Lys Glu Lys Phe Thr Gln Val Trp				
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Glu Ala Met Val Leu Tyr Thr *				
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tcgaaggccc ggcgcgccat gtcctgggtg ccgcggtgcg ggcagtgaac gcgcgccggg	180
cggg atg ggc cgg cgc cgg gcg cca gag ctg tac cgg gct ccg ttc ccg	229
Met Gly Arg Arg Arg Ala Pro Glu Leu Tyr Arg Ala Pro Phe Pro	
1 5 10	
ttg tac gcg ctt cag gtc gac ccc agc act ggg ctg ctc atc gct gcg	277
Leu Tyr Ala Leu Gln Val Asp Pro Ser Thr Gly Leu Leu Ile Ala Ala	
16 21 26 31	

ggc gga gga ggc gcc gcc aag aca ggc ata aag aat ggc gtg cac ttt	325
Gly Gly Gly Gly Ala Ala Lys Thr Gly Ile Lys Asn Gly Val His Phe	
32 37 42 47	
ctg cag cta gag ctg att aat ggg cgc ttg agt gcc tcc ttg ctg cac	373
Leu Gln Leu Glu Leu Ile Asn Gly Arg Leu Ser Ala Ser Leu Leu His	
48 53 58 63	
tcc cat gac aca gag aca cgg gcc acc atg aac ttg gca ctg gct ggt	421
Ser His Asp Thr Glu Thr Arg Ala Thr Met Asn Leu Ala Leu Ala Gly	
64 69 74 79	
gac atc ctt gct gca ggg cag gat gcc cac tgt cag ctc ctg cgc ttc	469
Asp Ile Leu Ala Ala Gly Gln Asp Ala His Cys Gln Leu Leu Arg Phe	
80 85 90 95	
cag gca cat caa cag cag ggc aac aag gca gag aag gcc ggt tcc aag	517
Gln Ala His Gln Gln Gln Gly Asn Lys Ala Glu Lys Ala Gly Ser Lys	
96 101 106 111	
gag cag ggg cct cga caa agg aag gga gca gcc cca gca gag aag aaa	565
Glu Gln Gly Pro Arg Gln Arg Lys Gly Ala Ala Pro Ala Glu Lys Lys	
112 117 122 127	
tgt gga gcg gaa acc cag cac gag ggg cta gaa ctc agg gta gag aat	613
Cys Gly Ala Glu Thr Gln His Glu Gly Leu Glu Leu Arg Val Glu Asn	
128 133 138 143	
ttg cag gcg gtg cag aca gac ttt agc tcc gat cca ctg cag aaa gtt	661
Leu Gln Ala Val Gln Thr Asp Phe Ser Ser Asp Pro Leu Gln Lys Val	
144 149 154 159	
gtg tgc ttc aac cac gat aat acc ctg ctt gcc act gga gga aca gat	709
Val Cys Phe Asn His Asp Asn Thr Leu Leu Ala Thr Gly Gly Thr Asp	
160 165 170 175	
ggc tac gtc cgt gtc tgg aag gtg ccc agc ctg gag aag gtt ctg gag	757
Gly Tyr Val Arg Val Trp Lys Val Pro Ser Leu Glu Lys Val Leu Glu	
176 181 186 191	
ttc aaa gcc cac gaa ggg gag att gaa gac ctg gct tta ggg cct gat	805
Phe Lys Ala His Glu Gly Glu Ile Glu Asp Leu Ala Leu Gly Pro Asp	
192 197 202 207	
ggc aag ttg gta acc gtg ggc cgg gac ctt aag gcc tct gtg tgg cag	853
Gly Lys Leu Val Thr Val Gly Arg Asp Leu Lys Ala Ser Val Trp Gln	
208 213 218 223	
aag gat cag ctg gtg aca cag ctg cac tgg caa gaa aat gga ccc acc	901
Lys Asp Gln Leu Val Thr Gln Leu His Trp Gln Glu Asn Gly Pro Thr	
224 229 234 239	
ttt tcc agc aca cct tac cgc tac cag gcc tgc agg ttt ggg cag gtt	949
Phe Ser Ser Thr Pro Tyr Arg Tyr Gln Ala Cys Arg Phe Gly Gln Val	
240 245 250 255	

cca gac cag cct gct ggc ctg cga ctc ttc aca gtg caa att ccc cac	997
Pro Asp Gln Pro Ala Gly Leu Arg Leu Phe Thr Val Gln Ile Pro His	
256 261 266 271	
aag cgc ctg cgc cag ccc cct ccc tgc tac ctc aca gcc tgg gat ggc	1045
Lys Arg Leu Arg Gln Pro Pro Pro Cys Tyr Leu Thr Ala Trp Asp Gly	
272 277 282 287	
tcc aac ttc ttg ccc ctt cgg acc aag tcc tgt ggc cat gaa gtc gtc	1093
Ser Asn Phe Leu Pro Leu Arg Thr Lys Ser Cys Gly His Glu Val Val	
288 293 298 303	
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Ser Cys Leu Asp Val Ser Glu Ser Gly Thr Phe Leu Gly Leu Gly Thr	
304 309 314 319	
gtc act ggc tct gtt gcc atc tac ata gct ttc tct ctc cag tgc ctc	1189
Val Thr Gly Ser Val Ala Ile Tyr Ile Ala Phe Ser Leu Gln Cys Leu	
320 325 330 335	
tac tac gtg agg gag gcc cat ggc att gtg gtg acg gat gtg gcc ttt	1237
Tyr Tyr Val Arg Glu Ala His Gly Ile Val Val Thr Asp Val Ala Phe	
336 341 346 351	
cta cct gag aag ggt cgt ggt cca gag ctc ctt ggg tcc cat gaa act	1285
Leu Pro Glu Lys Gly Arg Gly Pro Glu Leu Leu Gly Ser His Glu Thr	
352 357 362 367	
gcc ctg ttc tct gtg gct gtg gac agt cgt tgc cag ctg cat ctg ttg	1333
Ala Leu Phe Ser Val Ala Val Asp Ser Arg Cys Gln Leu His Leu Leu	
368 373 378 383	
ccc tca cgg cgg agt gtt cct gtg tgg ctc ctg ctc ctg ctg tgt gtc	1381
Pro Ser Arg Arg Ser Val Pro Val Trp Leu Leu Leu Leu Cys Val	
384 389 394 399	
ggg ctt att att gtg acc atc ctg ctg ctc cag agt gcc ttt cca ggt	1429
Gly Leu Ile Ile Val Thr Ile Leu Leu Leu Gln Ser Ala Phe Pro Gly	
400 405 410 415	
ttc ctt tag cttccct gcttcctggg aatcaggagc ctggacactg ccatctctag	1485
Phe Leu *	
416	
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gttgagcttg tccctttatct agaaacatgt gaagatgccc aagagcctgg aggcactgct	1785
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catgaagccc ctggcatttg ctggggaagg gactggcctg gtacttgctg ttagggcagg	1905

aaggggcaaa aggaagactt gggtagtaat ctgggggttc agatgggtag cactaagcca 1965  
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tgacagcaggt ggtctggcag cagctgggat ggcagcagat ctcttggcag aggtcttaac 1020  
cacacctctc tgaacaggag cccacccttc acccctgaca cc atg acc cac tgc 1074

## Met Thr His Cys

1

tgt	tcc	cct	tgc	tgt	cag	cct	aca	tgc	tgc	agg	acc	acc	tgc	tgc	agg	1122
Cys	Ser	Pro	Cys	Cys	Gln	Pro	Thr	Cys	Cys	Arg	Thr	Thr	Cys	Cys	Arg	
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aca	acc	tgc	tgg	aag	ccc	acc	act	gtg	acc	acc	tgc	agc	agc	aca	ccc	1170
Thr	Thr	Cys	Trp	Lys	Pro	Thr	Thr	Val	Thr	Thr	Cys	Ser	Ser	Thr	Pro	
21					26					31					36	
tgt	tgc	cag	ccc	tcc	tgc	tgt	gtg	ccc	agc	tgc	tgc	cag	cct	tgc	tgc	1218
Cys	Cys	Gln	Pro	Ser	Cys	Cys	Val	Pro	Ser	Cys	Cys	Gln	Pro	Cys	Cys	
37					42					47					52	
cac	cca	act	tgc	tgt	caa	aac	acc	tgc	tgc	agg	acc	acc	tgc	tgc	cag	1266
His	Pro	Thr	Cys	Cys	Gln	Asn	Thr	Cys	Cys	Arg	Thr	Thr	Cys	Cys	Gln	
53					58					63					68	
ccc	act	tgt	gtg	gcc	agc	tgc	tgc	cag	cct	tcc	tgc	tgc	agc	aca	ccc	1314
Pro	Thr	Cys	Val	Ala	Ser	Cys	Cys	Gln	Pro	Ser	Cys	Cys	Ser	Thr	Pro	
69					74					79					84	
tgc	tgc	cag	ccc	acc	tgc	tgt	ggg	tcc	agc	tgc	tgt	ggc	caa	acc	agc	1362
Cys	Cys	Gln	Pro	Thr	Cys	Cys	Gly	Ser	Ser	Cys	Cys	Gly	Gln	Thr	Ser	
85					90					95					100	
tgt	ggg	tcc	agc	tgc	tgt	cag	cct	att	tgt	ggg	tcc	agt	tgc	tgt	cag	1410
Cys	Gly	Ser	Ser	Cys	Cys	Gln	Pro	Ile	Cys	Gly	Ser	Ser	Cys	Cys	Gln	
101					106					111					116	
cct	tgc	tgt	cac	ccg	act	tgc	tat	caa	act	atc	tgc	ttc	agg	acc	acc	1458
Pro	Cys	Cys	His	Pro	Thr	Cys	Tyr	Gln	Thr	Ile	Cys	Phe	Arg	Thr	Thr	
117					122					127					132	
tgc	tgc	cag	cct	acc	tgc	tgc	cag	ccc	acc	tgc	tgc	agg	aac	acc	tct	1506
Cys	Cys	Gln	Pro	Thr	Cys	Cys	Gln	Pro	Thr	Cys	Cys	Arg	Asn	Thr	Ser	
133					138					143					148	
tgc	cag	ccc	acc	tgc	tgt	ggg	tcc	agc	tgc	tgc	cag	cct	tgc	tgc	cac	1554
Cys	Gln	Pro	Thr	Cys	Cys	Gly	Ser	Ser	Cys	Cys	Gln	Pro	Cys	Cys	His	
149					154					159					164	
cca	aca	tgc	tgt	caa	acc	att	tgt	aga	tcc	acc	tgc	tgc	caa	cca	tcc	1602
Pro	Thr	Cys	Cys	Gln	Thr	Ile	Cys	Arg	Ser	Thr	Cys	Cys	Gln	Pro	Ser	
165					170					175					180	
tgt	gtg	acc	aga	tgc	tgc	agc	aca	ccc	tgt	tgc	cag	cca	acc	tgt	ggt	1650
Cys	Val	Thr	Arg	Cys	Cys	Ser	Thr	Pro	Cys	Cys	Gln	Pro	Thr	Cys	Gly	
181					186					191					196	
ggg	tcc	agc	tgc	tgt	agc	caa	acc	tgc	aat	gag	tcc	agc	tat	tgt	ctg	1698
Gly	Ser	Ser	Cys	Cys	Ser	Gln	Thr	Cys	Asn	Glu	Ser	Ser	Tyr	Cys	Leu	
197					202					207					212	
cct	tgc	tgc	cgt	ccc	acc	tgc	tgc	cag	acc	acc	tgc	tac	agg	acc	acc	1746
Pro	Cys	Cys	Arg	Pro	Thr	Cys	Cys	Gln	Thr	Thr	Cys	Tyr	Arg	Thr	Thr	

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tgt tgc cgc ccc agc	tgt tgc tgc agt cct	tgc tgt gtc tcc agc	tgc	1794
Cys Cys Arg Pro Ser	Cys Cys Cys Ser Pro	Cys Cys Val Ser Ser	Cys	
229	234	239	244	
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accagcagc cctgccgcc aggtcaacg tggacgggct cctgggtctac ttcccgtacg 1020

actacatcta ccccgagcag ttctcttac atg cgg gag ctc aaa cgc acg ctg 1073  
Met Arg Glu Leu Lys Arg Thr Leu  
1 5

gac gcc aag ggt cat gga gtc ctg gag atg ccc tca ggc acc ggg aag 1121  
Asp Ala Lys Gly His Gly Val Leu Glu Met Pro Ser Gly Thr Gly Lys  
9 14 19 24

aca gta tcc ctg ttg gcc ctg atc atg gca tac cag aga gca tat ccg 1169  
Thr Val Ser Leu Leu Ala Leu Ile Met Ala Tyr Gln Arg Ala Tyr Pro  
25 30 35 40

ctg gag gtg acc aaa ctc atc tac tgc tca aga act gtg cca gag att 1217  
Leu Glu Val Thr Lys Leu Ile Tyr Cys Ser Arg Thr Val Pro Glu Ile  
41 46 51 56

gag aag gtg att gaa gag ctt cga aag ttg ctc aac ttc tat gag aag 1265  
Glu Lys Val Ile Glu Glu Leu Arg Lys Leu Leu Asn Phe Tyr Glu Lys  
57 62 67 72

cag gag ggc gag aag ctg ccg ttt ctg gga ctg gct ctg agc tcc cgc 1313  
Gln Glu Gly Glu Lys Leu Pro Phe Leu Gly Leu Ala Leu Ser Ser Arg  
73 78 83 88

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Lys Asn Leu Cys Ile His Pro Glu Val Thr Pro Leu Arg Phe Gly Lys  
89 94 99 104

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Gln Tyr Gln His Asp Thr Ser Leu Pro His Cys Arg Phe Tyr Glu Glu  
121 126 131 136

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Phe Asp Ala His Gly Arg Glu Val Pro Leu Pro Ala Gly Ile Tyr Asn  
137 142 147 152

ctg gat gac ctg aag gcc ctg ggg cgg cgc cag ggc tgg tgc cca tac 1553  
Leu Asp Asp Leu Lys Ala Leu Gly Arg Arg Gln Gly Trp Cys Pro Tyr  
153 158 163 168

ttc ctt gct cga tac tca atc ctg cat gcc aat gtg gtg gtt tat agc 1601  
Phe Leu Ala Arg Tyr Ser Ile Leu His Ala Asn Val Val Val Tyr Ser  
169 174 179 184

tac cac tac ctc ctg gac ccc aag att gca gac ctg gtg tcc aag gaa 1649  
Tyr His Tyr Leu Leu Asp Pro Lys Ile Ala Asp Leu Val Ser Lys Glu  
185 190 195 200

ctg gcc cgc aag gcc gtc gtg gtc ttc gac gag gcc cac aac att gac 1697  
Leu Ala Arg Lys Ala Val Val Val Phe Asp Glu Ala His Asn Ile Asp  
201 206 211 216

aac gtc tgc atc gac tcc atg agc gtc aac ctc acc cgc cgg acc ctt	1745
Asn Val Cys Ile Asp Ser Met Ser Val Asn Leu Thr Arg Arg Thr Leu	
217 222 227 232	
gac cgg tgc cag ggc aac ctg gag acc ctg cag aag acg gtg ctc agg	1793
Asp Arg Cys Gln Gly Asn Leu Glu Thr Leu Gln Lys Thr Val Leu Arg	
233 238 243 248	
atc aaa gag aca gac gag cag cgc ctg cgg gac gag tac cgg cgt ctg	1841
Ile Lys Glu Thr Asp Glu Gln Arg Leu Arg Asp Glu Tyr Arg Arg Leu	
249 254 259 264	
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Val Glu Gly Leu Arg Glu Ala Ser Ala Ala Arg Glu Thr Asp Ala His	
265 270 275 280	
ctg gcc aac ccc gtg ctg ccc gac gaa gtg ctg cag gag gca gtg cct	1937
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Ala Asn Phe Ala Thr Leu Val Ser Thr Tyr Ala Lys Gly Phe Thr Ile	
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Ile Ile Glu Pro Phe Asp Asp Arg Thr Pro Thr Ile Ala Asn Pro Ile	
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Leu His Phe Ser Cys Met Asp Ala Ser Leu Ala Ile Lys Pro Val Phe	
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Glu Arg Phe Gln Ser Val Ile Ile Thr Ser Gly Thr Leu Ser Pro Leu	
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 Ser Ser Gly Pro Leu Cys Ala Leu Val Gln Gly Gln Ser Arg Pro Glu  
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Glu Gln Val Pro Pro Ser Asp Phe Cys Gly Val Arg Arg Cys Arg Ala  
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 Cys Phe Ser \*  
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Met Glu Ile Leu Met Thr Val Ser Lys Phe Ala	
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Ser Ile Cys Thr Met Gly Ala Asn Ala Ser Ala Leu Glu Lys Glu Ile	
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Gly Pro Glu Gln Phe Pro Val Asn Glu His Tyr Phe Gly Leu Val Asn	
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Phe Gly Asn Thr Cys Tyr Cys Asn Ser Val Leu Gln Ala Leu Tyr Phe	
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Cys Arg Pro Phe Arg Glu Lys Val Leu Ala Tyr Lys Ser Gln Pro Arg	
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Lys Lys Glu Ser Leu Leu Thr Cys Leu Ala Asp Leu Phe His Ser Ile	
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Ala Thr Gln Lys Lys Lys Val Gly Val Ile Pro Pro Lys Lys Phe Ile	
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Thr Arg Leu Arg Lys Glu Asn Glu Leu Phe Asp Asn Tyr Met Gln Gln	
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Asp Ala His Glu Phe Leu Asn Tyr Leu Leu Asn Thr Ile Ala Asp Ile	
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Asn Leu Leu Lys Glu Val Asp Trp Ser Gln Asn Thr Ala Thr Phe Ser	
12 17 22 27	
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Pro Ala Ile Ser Pro Thr His Pro Gly Glu Gly Leu Val Leu Arg Pro	
28 33 38 43	
ctt tgt act gct gac tta aat aga ggt ttt ttt aag gta ttg ggt cag	254
Leu Cys Thr Ala Asp Leu Asn Arg Gly Phe Phe Lys Val Leu Gly Gln	
44 49 54 59	
cta aca gag act gga gtt gtc agc cct gaa caa ttt atg aaa tct ttt	302
Leu Thr Glu Thr Gly Val Val Ser Pro Glu Gln Phe Met Lys Ser Phe	
60 65 70 75	
gag cat atg aag aaa tct ggg gat tat tat gtt aca gtt gta gaa gat	350
Glu His Met Lys Lys Ser Gly Asp Tyr Tyr Val Thr Val Val Glu Asp	
76 81 86 91	
gtg act cta gga cag att gtt gct acg gca act ctg att ata gaa cat	398
Val Thr Leu Gly Gln Ile Val Ala Thr Ala Thr Leu Ile Ile Glu His	
92 97 102 107	
aaa ttc atc cat tcc tgt gct aag aga gga aga gta gaa gat gtt gtt	446
Lys Phe Ile His Ser Cys Ala Lys Arg Gly Arg Val Glu Asp Val Val	
108 113 118 123	
gct agt gat gaa tgc aga gga aag cag ctt ggc aac ttg tta tta tca	494
Ala Ser Asp Glu Cys Arg Gly Lys Gln Leu Gly Asn Leu Leu Leu Ser	
124 129 134 139	
acc ctt act ttg cta agc aag aaa ctg aac tgt tac aag att acc ctt	542
Thr Leu Thr Leu Leu Ser Lys Lys Leu Asn Cys Tyr Lys Ile Thr Leu	
140 145 150 155	
gaa tgt cta cca caa aat gtt ggt ttc tat aaa aag ttt gga tat act	590
Glu Cys Leu Pro Gln Asn Val Gly Phe Tyr Lys Lys Phe Gly Tyr Thr	
156 161 166 171	
gta tct gaa gaa aac tac atg tgt cgg agg ttt cta aag taa aaatctt	639
Val Ser Glu Glu Asn Tyr Met Cys Arg Arg Phe Leu Lys *	
172 177 182	
gtaagaaaat tgtcaaagg gctaagtcta caaggctaca ctcttcctag agttgaaata	699
ttttgttgct gcagccgagt gacctccata aatactggac tgaaaaaaca ttgtaatact	759
acaagtataa tgacatttag aagattactt tgggctgggtg ggacatgctg tgaatttaga	819
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atctttttctt gcattgtatt tttctaaaag ttggtcttcc	919

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 tgcaccttc gcagccttca ctccagccct ctgctccgc acgcc atg aag tcg 174  
 Met Lys Ser  
 1  
 ccg ttc tac cgc tgc cag aac acc acc tct gtg gaa aaa ggc aac tcg 222  
 Pro Phe Tyr Arg Cys Gln Asn Thr Thr Ser Val Glu Lys Gly Asn Ser  
 4 9 14 19  
 gcg gtg atg ggc ggg gtg ctc ttc agc acc ggc ctc ctg ggc aac ctg 270  
 Ala Val Met Gly Gly Val Leu Phe Ser Thr Gly Leu Leu Gly Asn Leu  
 20 25 30 35  
 ctg gcc ctg ggg ctg ctg gcg cgc tcg ggg ctg ggg tgg tgc tcg cgg 318  
 Leu Ala Leu Gly Leu Leu Ala Arg Ser Gly Leu Gly Trp Cys Ser Arg  
 36 41 46 51  
 cgt cca ctg cgc ccg ctg ccc tcg gtc ttc tac atg ctg gtg tgt ggc 366  
 Arg Pro Leu Arg Pro Leu Pro Ser Val Phe Tyr Met Leu Val Cys Gly  
 52 57 62 67  
 ctg acg gtc acc gac ttg ctg ggc aag tgc ctc cta agc ccg gtg gtg 414  
 Leu Thr Val Thr Asp Leu Leu Gly Lys Cys Leu Leu Ser Pro Val Val  
 68 73 78 83  
 ctg gct gcc tac gct cag aac cgg agt ctg cgg gtg ctt gcg ccc gca 462  
 Leu Ala Ala Tyr Ala Gln Asn Arg Ser Leu Arg Val Leu Ala Pro Ala  
 84 89 94 99  
 ttg gac aac tcg ttg tgc caa gcc ttc gcc ttc ttc atg tcc ttc ttt 510  
 Leu Asp Asn Ser Leu Cys Gln Ala Phe Ala Phe Phe Met Ser Phe Phe  
 100 105 110 115  
 ggg ctc tcc tcg aca ctg caa ctc ctg gcc atg gca ctg gag tgc tgg 558  
 Gly Leu Ser Ser Thr Leu Gln Leu Leu Ala Met Ala Leu Glu Cys Trp  
 116 121 126 131  
 ctc tcc cta ggg cac cct ttc ttc tac cga cgg cac atc acc ctg cgc 606  
 Leu Ser Leu Gly His Pro Phe Phe Tyr Arg Arg His Ile Thr Leu Arg  
 132 137 142 147

ctg ggc gca ctg gtg gcc cgg gtg gtg agc gcc ttc tcc ctg gct ttc	654
Leu Gly Ala Leu Val Ala Pro Val Val Ser Ala Phe Ser Leu Ala Phe	
148 153 158 163	
tgc gcg cta cct ttc atg ggc ttc ggg aag ttc gtg cag tac tgc ccc	702
Cys Ala Leu Pro Phe Met Gly Phe Gly Lys Phe Val Gln Tyr Cys Pro	
164 169 174 179	
ggc acc tgg tgc ttt atc cag atg gtc cac gag gag ggc tgc ctg tgc	750
Gly Thr Trp Cys Phe Ile Gln Met Val His Glu Glu Gly Ser Leu Ser	
180 185 190 195	
gtg ctg ggg tac tct gtg ctc tac tcc agc ctc atg gcg ctg ctg gtc	798
Val Leu Gly Tyr Ser Val Leu Tyr Ser Ser Leu Met Ala Leu Leu Val	
196 201 206 211	
ctc gcc acc gtg ctg tgc aac ctc ggc gcc atg cgc aac ctc tat gcg	846
Leu Ala Thr Val Leu Cys Asn Leu Gly Ala Met Arg Asn Leu Tyr Ala	
212 217 222 227	
atg cac cgg cgg ctg cag cgg cac ccg cgc tcc tgc acc agg gac tgt	894
Met His Arg Arg Leu Gln Arg His Pro Arg Ser Cys Thr Arg Asp Cys	
228 233 238 243	
gcc gag ccg cgc gcg gac ggg agg gaa gcg tcc cct cag ccc ctg gag	942
Ala Glu Pro Arg Ala Asp Gly Arg Glu Ala Ser Pro Gln Pro Leu Glu	
244 249 254 259	
gag ctg gat cac ctc ctg ctg ctg gcg ctg atg acc gtg ctc ttc act	990
Glu Leu Asp His Leu Leu Leu Leu Ala Leu Met Thr Val Leu Phe Thr	
260 265 270 275	
atg tgt tct ctg ccc gta att tat cgc gct tac tat gga gca ttt aag	1038
Met Cys Ser Leu Pro Val Ile Tyr Arg Ala Tyr Tyr Gly Ala Phe Lys	
276 281 286 291	
gat gtc aag gag aaa aac agg acc tct gaa gaa gca gaa gac ctc cga	1086
Asp Val Lys Glu Lys Asn Arg Thr Ser Glu Glu Ala Glu Asp Leu Arg	
292 297 302 307	
gcc ttg cga ttt cta tct gtg att tca att gtg gac cct tgg att ttt	1134
Ala Leu Arg Phe Leu Ser Val Ile Ser Ile Val Asp Pro Trp Ile Phe	
308 313 318 323	
atc att ttc aga tct cca gta ttt cgg ata ttt ttt cac aag att ttc	1182
Ile Ile Phe Arg Ser Pro Val Phe Arg Ile Phe Phe His Lys Ile Phe	
324 329 334 339	
att aga cct ctt agg tac agg agc cgg tgc agc aat tcc act aac atg	1230
Ile Arg Pro Leu Arg Tyr Arg Ser Arg Cys Ser Asn Ser Thr Asn Met	
340 345 350 355	
gaa tcc agt ctg tga cagtgttttt cactctgtgg taagctgagg aatatgtcac	1285
Glu Ser Ser Leu *	
356	
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 atg ttt ctt acc cgg tct gag tac gac agg ggc gtg aat act ttt tct 168  
 Met Phe Leu Thr Arg Ser Glu Tyr Asp Arg Gly Val Asn Thr Phe Ser  
 1 5 10 15  
 ccc gaa gga aga tta ttt caa gtg gaa tat gcc att gag gct atc aag 216  
 Pro Glu Gly Arg Leu Phe Gln Val Glu Tyr Ala Ile Glu Ala Ile Lys  
 17 22 27 32  
 ctt ggt tct aca gcc att ggg atc cag aca tca gag ggt gtg tgc cta 264  
 Leu Gly Ser Thr Ala Ile Gly Ile Gln Thr Ser Glu Gly Val Cys Leu  
 33 38 43 48  
 gct gtg gag aag aga att act tcc cca ctg atg gag ccc agc agc att 312  
 Ala Val Glu Lys Arg Ile Thr Ser Pro Leu Met Glu Pro Ser Ser Ile  
 49 54 59 64  
 gag aaa att gta gag att gat gct cac ata ggt tgt gcc atg agt ggg 360  
 Glu Lys Ile Val Glu Ile Asp Ala His Ile Gly Cys Ala Met Ser Gly  
 65 70 75 80  
 cta att gct gat gct aag act tta att gat aaa gcc aga gtg gag aca 408  
 Leu Ile Ala Asp Ala Lys Thr Leu Ile Asp Lys Ala Arg Val Glu Thr  
 81 86 91 96  
 cag aac cac tgg ttc acc tac aat gag aca atg aca gtg gag agt gtg 456  
 Gln Asn His Trp Phe Thr Tyr Asn Glu Thr Met Thr Val Glu Ser Val  
 97 102 107 112  
 acc caa gct gtg tcc aat ctg gct ttg cag ttt gga gaa gaa gat gca 504  
 Thr Gln Ala Val Ser Asn Leu Ala Leu Gln Phe Gly Glu Glu Asp Ala  
 113 118 123 128  
 gat cca ggt gcc atg tct cgt ccc ttt gga gta gca tta tta ttt gga 552  
 Asp Pro Gly Ala Met Ser Arg Pro Phe Gly Val Ala Leu Leu Phe Gly  
 129 134 139 144  
 gga gtt gat gag aaa gga ccc cag ctg ttt cat atg gac cca tct ggg 600  
 Gly Val Asp Glu Lys Gly Pro Gln Leu Phe His Met Asp Pro Ser Gly  
 145 150 155 160

acc ttt gta cag tgt gat gct cga gca att ggc tct gct tca gag ggt	648
Thr Phe Val Gln Cys Asp Ala Arg Ala Ile Gly Ser Ala Ser Glu Gly	
161 166 171 176	

gcc cag agc tcc ttg caa gaa gtt tac cac aag tct atg act ttg aaa	696
Ala Gln Ser Ser Leu Gln Glu Val Tyr His Lys Ser Met Thr Leu Lys	
177 182 187 192	

gaa gcc atc aag tct tca ctc atc atc ctc aaa caa gta atg gag gag	744
Glu Ala Ile Lys Ser Ser Leu Ile Ile Leu Lys Gln Val Met Glu Glu	
193 198 203 208	

aag ctg aat gca aca aac att gag cta gcc aca gtg cag cct ggc cag	792
Lys Leu Asn Ala Thr Asn Ile Glu Leu Ala Thr Val Gln Pro Gly Gln	
209 214 219 224	

aat ttc cac atg ttc aca aag gaa gaa ctt gaa gag gtt atc aag gac	840
Asn Phe His Met Phe Thr Lys Glu Glu Leu Glu Glu Val Ile Lys Asp	
225 230 235 240	

att taa ggaatcctga tcctcagaac ttctctggga caatttcagt tctaataatg	896
Ile *	
241	

tccttaaatt ttatttccag ctctgttcc ttggaaaatc tccattgtat gtgcattttt	956
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Met Leu Gly Arg Ser Gly Tyr Arg Ala Leu Pro Leu Gly Asp Phe Asp	
1 5 10 15	

cgc ttc cag cag tcg agc ttc ggc ttt ctg ggc tcg cag aag ggc tgc	154
Arg Phe Gln Gln Ser Ser Phe Gly Phe Leu Gly Ser Gln Lys Gly Cys	
17 22 27 32	

ttg tcc ccg gag cgg ggc ggc gtg ggg aca ggg gcc gat gta ccc cag	202
Leu Ser Pro Glu Arg Gly Gly Val Gly Thr Gly Ala Asp Val Pro Gln	
33 38 43 48	

agc tgg ccc tcc tgc ctc tgt cat ggc ctc atc agt ttc ctg ggg ttc	250
Ser Trp Pro Ser Cys Leu Cys His Gly Leu Ile Ser Phe Leu Gly Phe	
49 54 59 64	
ttg ctg ctg ttg gtc acc ttc ccc att tct ggc tgg ttt gcc ctg aag	298
Leu Leu Leu Leu Val Thr Phe Pro Ile Ser Gly Trp Phe Ala Leu Lys	
65 70 75 80	
att gtg ccc acc tac gag cgg atg att gtg ttc cgc ctg ggc cgg atc	346
Ile Val Pro Thr Tyr Glu Arg Met Ile Val Phe Arg Leu Gly Arg Ile	
81 86 91 96	
cgc acc ccc cag gga cct ggc atg gtt ctg ctc ttg ccc ttc att gac	394
Arg Thr Pro Gln Gly Pro Gly Met Val Leu Leu Leu Pro Phe Ile Asp	
97 102 107 112	
tcc ttt cag agg gtg gat ctg agg aca cga gcc ttc aac gtc cct ccc	442
Ser Phe Gln Arg Val Asp Leu Arg Thr Arg Ala Phe Asn Val Pro Pro	
113 118 123 128	
tgc aag ctg gcc tct aag gac ggg gct gtg ctg tcc gtg gga gcc gat	490
Cys Lys Leu Ala Ser Lys Asp Gly Ala Val Leu Ser Val Gly Ala Asp	
129 134 139 144	
gtc cag ttt cgc atc tgg gac ccg gtg ctg tcc gtg atg act gtg aaa	538
Val Gln Phe Arg Ile Trp Asp Pro Val Leu Ser Val Met Thr Val Lys	
145 150 155 160	
gac ctg aac aca gcc aca cgc atg aca gcc cag aac gcc atg acc aag	586
Asp Leu Asn Thr Ala Thr Arg Met Thr Ala Gln Asn Ala Met Thr Lys	
161 166 171 176	
gcc ctg ctc aag agg ccg ctg cgg gag atc cag atg gag aag ctc aag	634
Ala Leu Leu Lys Arg Pro Leu Arg Glu Ile Gln Met Glu Lys Leu Lys	
177 182 187 192	
atc agc gac cag ctt ctg ctg gag atc aac gat gtg acc agg gcc tgg	682
Ile Ser Asp Gln Leu Leu Leu Glu Ile Asn Asp Val Thr Arg Ala Trp	
193 198 203 208	
ggg ctg gag gta gac cgc gtg gag ctg gca gtg gag gcc gtg ctc cag	730
Gly Leu Glu Val Asp Arg Val Glu Leu Ala Val Glu Ala Val Leu Gln	
209 214 219 224	
ccg ccc cag gac agc cca gct ggg ccc aac ctg gac agc acc ctc cag	778
Pro Pro Gln Asp Ser Pro Ala Gly Pro Asn Leu Asp Ser Thr Leu Gln	
225 230 235 240	
cag ctg gcc ctg cac ttc ctg gga gga agc atg aac tca atg gca gga	826
Gln Leu Ala Leu His Phe Leu Gly Gly Ser Met Asn Ser Met Ala Gly	
241 246 251 256	
ggg gcc ccg tcc ccg ggg cca gca gac acc gtg gag atg gtg agt gaa	874
Gly Ala Pro Ser Pro Gly Pro Ala Asp Thr Val Glu Met Val Ser Glu	
257 262 267 272	
gtt gag cca cct gcc cct caa gtt ggt gcc agg tcc agt ccg aag cag	922

Val	Glu	Pro	Pro	Ala	Pro	Gln	Val	Gly	Ala	Arg	Ser	Ser	Pro	Lys	Gln	
273					278					283					288	
cct	ctg	gcg	gag	ggg	cta	ctg	act	gct	cta	cag	ccc	ttc	ctg	tct	gag	970
Pro	Leu	Ala	Glu	Gly	Leu	Leu	Thr	Ala	Leu	Gln	Pro	Phe	Leu	Ser	Glu	
289					294					299					304	
gcc	ctg	gtc	agc	caa	gtc	ggg	gcc	tgc	tac	cag	ttc	aat	gtc	gtc	ctg	1018
Ala	Leu	Val	Ser	Gln	Val	Gly	Ala	Cys	Tyr	Gln	Phe	Asn	Val	Val	Leu	
305					310					315					320	
ccc	agc	ggc	acc	caa	agc	gcc	tac	ttc	ctg	gac	ctc	act	aca	gga	cga	1066
Pro	Ser	Gly	Thr	Gln	Ser	Ala	Tyr	Phe	Leu	Asp	Leu	Thr	Thr	Gly	Arg	
321					326					331					336	
gga	aga	gtg	gga	cac	ggg	gtg	cct	gat	ggc	atc	cct	gat	gtg	gtg	gtg	1114
Gly	Arg	Val	Gly	His	Gly	Val	Pro	Asp	Gly	Ile	Pro	Asp	Val	Val	Val	
337					342					347					352	
gag	atg	gcc	gag	gca	gac	ctg	cgg	gcc	ctg	cta	tgc	aga	gag	ctg	cgg	1162
Glu	Met	Ala	Glu	Ala	Asp	Leu	Arg	Ala	Leu	Leu	Cys	Arg	Glu	Leu	Arg	
353					358					363					368	
ccc	ctg	ggg	gcc	tac	atg	agt	gga	cgg	ctg	aag	gtg	aag	ggc	gac	ctg	1210
Pro	Leu	Gly	Ala	Tyr	Met	Ser	Gly	Arg	Leu	Lys	Val	Lys	Gly	Asp	Leu	
369					374					379					384	
gct	atg	gcc	atg	aag	ctg	gag	gct	gtc	ctc	agg	gcc	ttg	aag	tag	cag	1258
Ala	Met	Ala	Met	Lys	Leu	Glu	Ala	Val	Leu	Arg	Ala	Leu	Lys	*		
385					390					395						
ccttg	gctga	ctttccagag	cccagtc	cca	agcctgg	cac	caagcctgag	gggcctcttg								1318
gaggaggagg	tgttcatctg	caccacagag	agttgaggcc	cta	acaaatt	tcaggcccag										1378
ccaagagccc	atgaatggag	gctgcaggag	gctgagtc	cg	gctgccatgc	acgtctcccc										1438
tacagtgggt	ctctggacaa	ggctttgtcc	atcccgggtcc	ccagctgagt	gcccagcgct											1498
gagctgggtg	cacggtgtga	ttccaggagg	agagccaggc	ctgccctgcc	ctgctggctt											1558
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tcctgcatgc	ctggcgagct	ggggcccagg	gcagcatgaa	ggagagccct	gcgttctgtg											1918
cttcttacca	gaggtttgca	agcctcagac	aaataaatgt	ggtgtttaca	atgtaaaaaa											1978
aagacttcag	tcatcccage	aatcgcttgg	ttcagtttca	ttcagctctc	tatggaccag											2038

taatctgata aataaccgag ctcttctttg gggatcacta cttcttgact tgtagtaact 2098  
gccaccaatc aagcagtcctc tcccttgcaa aaca 2132

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tggtgaaata gat atg gcg acc gag ggg gat gtg gag ctg gag ttg gag 169  
Met Ala Thr Glu Gly Asp Val Glu Leu Glu Leu Glu  
1 5 10  
act gag acc agt gga cca gag cgg cct ccg gag aag cca cgg aaa cat 217  
Thr Glu Thr Ser Gly Pro Glu Arg Pro Pro Glu Lys Pro Arg Lys His  
13 18 23 28  
gac agc ggt gcg gcg gac ttg gag cgg gtc acc gac tat gca gag gag 265  
Asp Ser Gly Ala Ala Asp Leu Glu Arg Val Thr Asp Tyr Ala Glu Glu  
29 34 39 44  
aag gag atc cag agt tcc aat ctg gag acg gcc atg tct gtg att gga 313  
Lys Glu Ile Gln Ser Ser Asn Leu Glu Thr Ala Met Ser Val Ile Gly  
45 50 55 60  
gac aga agg tcc cgg gag cag aaa gcc aaa cag gag cgg gag aaa gaa 361  
Asp Arg Arg Ser Arg Glu Gln Lys Ala Lys Gln Glu Arg Glu Lys Glu  
61 66 71 76  
ctg gca aaa gtc act atc aag aag gaa gat ctg gag cta ata atg act 409  
Leu Ala Lys Val Thr Ile Lys Lys Glu Asp Leu Glu Leu Ile Met Thr  
77 82 87 92  
gag atg gag ata tct cga gca gca gca gaa cgc agt ttg cgg gaa cac 457  
Glu Met Glu Ile Ser Arg Ala Ala Ala Glu Arg Ser Leu Arg Glu His  
93 98 103 108  
atg ggc aac gtg gta gag gcg ctt att gcc cta acc aac tga tgcgtgc 506  
Met Gly Asn Val Val Glu Ala Leu Ile Ala Leu Thr Asn \*  
109 114 119  
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642

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<222> (489) .. (2900)

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aatgagtcac ggattaaaat tgcttcacgc ggatagatac ctagggtgttc cacagcatta 180  
ctgaacaagc tgtogtcatt tccccattac ctccagaagac ccccttaatt acttacttat 240  
attaactgta gaacgtattt atgcatacca ggctctacct ctgggctttc tattctgttc 300  
cagagaccca gtaccagaat atttaaatac ctggggggcgt taaatacgtt ttaatatctg 360  
atagggccag tttctgcgca ttgcacattt ttttttcccc tttcaggaac gtgttcaggc 420  
ccgcggcagg gggcgggacg gcgcctctct ctgggctctg gttccagccg agcctctcgg 480  
acgcagag atg gaa atc ccg aag ctg ctc ccg gct cgc ggg aca cta cag 530  
Met Glu Ile Pro Lys Leu Leu Pro Ala Arg Gly Thr Leu Gln  
1 5 10  
ggc ggc ggc ggc ggc ggt atc ccc gcg ggt ggc ggc cga gtc cac cga 578  
Gly Gly Gly Gly Gly Gly Ile Pro Ala Gly Gly Gly Arg Val His Arg  
15 20 25 30  
ggc cct gac tcg ccg gct ggc cag gtc ccc acg cgc cgc ctc ctg ctg 626  
Gly Pro Asp Ser Pro Ala Gly Gln Val Pro Thr Arg Arg Leu Leu Leu  
31 36 41 46  
ctc cgg ggc ccc caa gat ggc ggg ccc ggg cgg cgg cgc gag gag gcc 674  
Leu Arg Gly Pro Gln Asp Gly Gly Pro Gly Arg Arg Arg Glu Glu Ala  
47 52 57 62  
agc acg gca tca cgg ggc cct ggc cca agc ctg ttg gcg ccg agg acc 722  
Ser Thr Ala Ser Arg Gly Pro Gly Pro Ser Leu Leu Ala Pro Arg Thr  
63 68 73 78  
gat caa cct agc ggc ggc ggc ggc ggc ggc gac gac ttc ttc ctg 770  
Asp Gln Pro Ser Gly Gly Gly Gly Gly Gly Gly Asp Asp Phe Phe Leu  
79 84 89 94  
gtg ctg ctt gac ccg gtg ggt ggc gac gtg gag acc gcg ggc tcc ggt 818  
Val Leu Leu Asp Pro Val Gly Gly Asp Val Glu Thr Ala Gly Ser Gly

95	100	105	110	
cag gcc gca ggg cct	gtg ttg agg gag	gag gcc gag gag ggc	ccg ggg	866
Gln Ala Ala Gly Pro	Val Leu Arg Glu Glu	Ala Glu Glu Gly Pro	Gly	
111	116	121	126	
ctc cag ggg ggc gag	agc ggc gcg aat	ccc gcg ggg ccc act	gcg cta	914
Leu Gln Gly Gly Glu	Ser Gly Ala Asn Pro	Ala Gly Pro Thr Ala	Leu	
127	132	137	142	
ggc ccc cgc tgc ctg	tcc gcg gtt ccc act	ccg gcc ccg atc tcc	gcc	962
Gly Pro Arg Cys Leu	Ser Ala Val Pro Thr	Pro Ala Pro Ile Ser	Ala	
143	148	153	158	
ccc ggc ccc gcc gcg	gcc ttc gcg ggc aca	gtc act atc cac aac	cag	1010
Pro Gly Pro Ala Ala	Ala Phe Ala Gly Thr	Val Thr Ile His Asn	Gln	
159	164	169	174	
gac ctg ctg ttg cgc	ttt gag aac ggc gtc	ctc acc ctg gcc acg	ccc	1058
Asp Leu Leu Leu Arg	Phe Glu Asn Gly Val	Leu Thr Leu Ala Thr	Pro	
175	180	185	190	
cca cca cac gcc tgg	gag cca ggg gcc gct	cct gcc cag cag ccc	ggg	1106
Pro Pro His Ala Trp	Glu Pro Gly Ala Ala	Pro Ala Gln Gln Pro	Gly	
191	196	201	206	
tgt ctg atc gcc ccg	caa gct ggg ttc ccg	cat gcc gcg cac ccg	ggt	1154
Cys Leu Ile Ala Pro	Gln Ala Gly Phe Pro	His Ala Ala His Pro	Gly	
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gac tgc cca gag ctg	ccg cca gac ctc ctg	cta gct gag ccg gcc	gaa	1202
Asp Cys Pro Glu Leu	Pro Pro Asp Leu Leu	Leu Ala Glu Pro Ala	Glu	
223	228	233	238	
ccc gcg cca gct ccg	gcg cct gag gag gag	gcg gag ggc ccg gcc	gcc	1250
Pro Ala Pro Ala Pro	Ala Pro Glu Glu Glu	Ala Glu Gly Pro Ala	Ala	
239	244	249	254	
gcc ctg ggc ccc cgc	gga ccg ctg ggc tcc	ggc cca ggc gtg gtg	ctg	1298
Ala Leu Gly Pro Arg	Gly Pro Leu Gly Ser	Gly Pro Gly Val Val	Leu	
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tac ttg tgc ccc gag	gcg cag tgc ggg caa	acc ttc gcc aag aag	cac	1346
Tyr Leu Cys Pro Glu	Ala Gln Cys Gly Gln	Thr Phe Ala Lys Lys	His	
271	276	281	286	
cag ctg aag gtg cac	ctg ctg acg cac agc	agc agc agc cag ggc	cag	1394
Gln Leu Lys Val His	Leu Leu Thr His Ser	Ser Ser Ser Gln Gly	Gln	
287	292	297	302	
ccc ttc aaa tgc ccc	ctg ggt ggc tgc ggc	tgg acc ttc acc acc	tct	1442
Pro Phe Lys Cys Pro	Leu Gly Gly Cys Gly	Trp Thr Phe Thr Thr	Ser	
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Tyr Lys Leu Lys Arg	His Leu Gln Ser His	Asp Lys Leu Arg Pro	Phe	
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Gly Cys Pro Ala Glu Gly Cys Gly Lys Ser Phe Thr Thr Val Tyr Asn	
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Leu Lys Ala His Met Lys Gly His Glu Gln Glu Asn Ser Phe Lys Cys	
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gag gtg tgc gag gag agc ttc ccc acg cag gcc aaa ctc agc gcc cac	1634
Glu Val Cys Glu Glu Ser Phe Pro Thr Gln Ala Lys Leu Ser Ala His	
367 372 377 382	
cag cgc agc cac ttc gaa ccg gag agg cct tac cag tgc gcg ttt tct	1682
Gln Arg Ser His Phe Glu Pro Glu Arg Pro Tyr Gln Cys Ala Phe Ser	
383 388 393 398	
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Gly Cys Lys Lys Thr Phe Ile Thr Val Ser Ala Leu Phe Ser His Asn	
399 404 409 414	
cgc gcc cat ttc agg gaa cag gaa ctg ttt tcc tgc tct ttt cct ggc	1778
Arg Ala His Phe Arg Glu Gln Glu Leu Phe Ser Cys Ser Phe Pro Gly	
415 420 425 430	
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Cys Ser Lys Gln Tyr Asp Lys Ala Cys Arg Leu Lys Ile His Leu Arg	
431 436 441 446	
agt cac acc ggc gag aga cct ttc ctt tgt gac ttt gat ggc tgt ggc	1874
Ser His Thr Gly Glu Arg Pro Phe Leu Cys Asp Phe Asp Gly Cys Gly	
447 452 457 462	
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Trp Asn Phe Thr Ser Met Ser Lys Leu Leu Arg His Lys Arg Lys His	
463 468 473 478	
gac gat gac cgg agg ttc atg tgc cct gtg gaa ggc tgt ggg aaa tct	1970
Asp Asp Asp Arg Arg Phe Met Cys Pro Val Glu Gly Cys Gly Lys Ser	
479 484 489 494	
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Phe Thr Arg Ala Glu His Leu Lys Gly His Ser Ile Thr His Leu Gly	
495 500 505 510	
aca aag cct ttc gtg tgt cct gtg gca ggc tgc tgt gcc agg ttc tct	2066
Thr Lys Pro Phe Val Cys Pro Val Ala Gly Cys Cys Ala Arg Phe Ser	
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Ala Arg Ser Ser Leu Tyr Ile His Ser Lys Lys His Leu Gln Asp Val	
527 532 537 542	
gac act tgg aaa agc cgt tgc ccg atc tcc tct tgt aat aaa ctc ttc	2162
Asp Thr Trp Lys Ser Arg Cys Pro Ile Ser Ser Cys Asn Lys Leu Phe	
543 548 553 558	

aca tcc aag cac agc atg aag acg cac atg gtt aaa agg cat aag gtg	2210
Thr Ser Lys His Ser Met Lys Thr His Met Val Lys Arg His Lys Val	
559 564 569 574	
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Gly Gln Asp Leu Leu Ala Gln Leu Glu Ala Ala Asn Ser Leu Thr Pro	
575 580 585 590	
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Ser Ser Glu Leu Thr Ser Gln Arg Gln Asn Asp Leu Ser Asp Ala Glu	
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ata gtg tct ctc ttc tct gat gta cct gac agt act tct gct gca ttg	2354
Ile Val Ser Leu Phe Ser Asp Val Pro Asp Ser Thr Ser Ala Ala Leu	
607 612 617 622	
ctg gac aca gca ttg gtg aac tct gga atc ttg act att gat gtg gct	2402
Leu Asp Thr Ala Leu Val Asn Ser Gly Ile Leu Thr Ile Asp Val Ala	
623 628 633 638	
tct gtg agc tcg act ctg gca ggg cac ctc cct gct aat aat aat aat	2450
Ser Val Ser Ser Thr Leu Ala Gly His Leu Pro Ala Asn Asn Asn Asn	
639 644 649 654	
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Ser Val Gly Gln Ala Val Asp Pro Pro Ser Leu Met Ala Thr Ser Asp	
655 660 665 670	
cct cct caa agt ctg gat acc tct ctc ttt ttt gga acg gcg gcc act	2546
Pro Pro Gln Ser Leu Asp Thr Ser Leu Phe Phe Gly Thr Ala Ala Thr	
671 676 681 686	
ggg ttt cag cag agc tcc tta aat atg gat gag gtc tca agt gta agt	2594
Gly Phe Gln Gln Ser Ser Leu Asn Met Asp Glu Val Ser Ser Val Ser	
687 692 697 702	
gtg ggg cca ttg gga tct ctg gac tct ttg gcc atg aaa aac tcc agt	2642
Val Gly Pro Leu Gly Ser Leu Asp Ser Leu Ala Met Lys Asn Ser Ser	
703 708 713 718	
cca gag cct cag gct ttg aca ccc agc agt aag cta aca gtg gac aca	2690
Pro Glu Pro Gln Ala Leu Thr Pro Ser Ser Lys Leu Thr Val Asp Thr	
719 724 729 734	
gat gct ctg act cct tcg agc acc ctt tgt gaa aac agt gtc tca gaa	2738
Asp Ala Leu Thr Pro Ser Ser Thr Leu Cys Glu Asn Ser Val Ser Glu	
735 740 745 750	
cta ctg aca cca acc aaa gcg gag tgg aac gta cat cct gac tct gac	2786
Leu Leu Thr Pro Thr Lys Ala Glu Trp Asn Val His Pro Asp Ser Asp	
751 756 761 766	
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Phe Phe Gly Gln Glu Gly Glu Thr Gln Phe Gly Phe Pro Asn Ala Ala	
767 772 777 782	
gga aac cat ggt tct cag aaa gaa aca gat ctt atc act gtg act ggc	2882

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Ser Ser Phe Leu Val *	
799	804
ttattacagt caatTTtgag gatattctgg actaaatatt taagtgcagt catttctttt	2996
tggTTtgcaa aaagagcaca gccctggact acaagTTtg agatttaaatt ctgatcttga	3056
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cgc gtg ccc tac tgc tcg gta gtc tgc ttc cgg aag cac aaa gaa cag 268  
Arg Val Pro Tyr Cys Ser Val Val Cys Phe Arg Lys His Lys Glu Gln  
26 31 36 41

tgc aac cct gaa act cgt cct gtt gag aaa aaa ata aga tca gct ctt 316  
Cys Asn Pro Glu Thr Arg Pro Val Glu Lys Lys Ile Arg Ser Ala Leu  
42 47 52 57

cct acc aaa acc gta aag cct gtg gaa aac aaa gat gat gat gac tct 364  
Pro Thr Lys Thr Val Lys Pro Val Glu Asn Lys Asp Asp Asp Asp Ser  
58 63 68 73

ata gct gat ttt ctc aat agt gat gag gaa gaa gac aga gtt tct ttg	412
Ile Ala Asp Phe Leu Asn Ser Asp Glu Glu Glu Asp Arg Val Ser Leu	
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Gln Asn Leu Lys Asn Leu Gly Glu Ser Ala Thr Leu Arg Ser Leu Leu	
90 95 100 105	
ctc aat cca cac ctc agg cag ttg atg gtc aac ctc gat cag gga gaa	508
Leu Asn Pro His Leu Arg Gln Leu Met Val Asn Leu Asp Gln Gly Glu	
106 111 116 121	
gac aaa gca aag ctc atg aga gct tac atg caa gag cct ttg ttt gtg	556
Asp Lys Ala Lys Leu Met Arg Ala Tyr Met Gln Glu Pro Leu Phe Val	
122 127 132 137	
gag ttt gca gac tgc tgt tta gga att gtg gag cca tcc cag aat gag	604
Glu Phe Ala Asp Cys Cys Leu Gly Ile Val Glu Pro Ser Gln Asn Glu	
138 143 148 153	
gag tct taa gatggat tattgtgctg cttgctcaag cgtgtgcttg actcctggaa	660
Glu Ser *	
154	
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taaataactaa agttttgttc ctttttaaag gaaataacca caagattttt ccagcccaa	1080
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acc cag gcc atg agg gac aaa tgt gga gca agg gat gga gct gga act 96  
 Thr Gln Ala Met Arg Asp Lys Cys Gly Ala Arg Asp Gly Ala Gly Thr  
 17 22 27 32

tgc tat tat ggg acg tta aag ctg gca gga cct gag agc ctt aga tgg 144  
 Cys Tyr Tyr Gly Thr Leu Lys Leu Ala Gly Pro Glu Ser Leu Arg Trp  
 33 38 43 48

ctt gcc tta gat ggc gaa agg gat gtt gca gat aca atg aag aat ttt 192  
 Leu Ala Leu Asp Gly Glu Arg Asp Val Ala Asp Thr Met Lys Asn Phe  
 49 54 59 64

gag atg cgg att ctc ctg gat tac cca ggt ggg ccc agc aca atc act 240  
 Glu Met Arg Ile Leu Leu Asp Tyr Pro Gly Gly Pro Ser Thr Ile Thr  
 65 70 75 80

gga tca gag aga gta gaa gat gcc tct ttg ctg gct ttg aag atg gag 288  
 Gly Ser Glu Arg Val Glu Asp Ala Ser Leu Leu Ala Leu Lys Met Glu  
 81 86 91 96

gaa ggg gct atg agt gaa gga gga ggg aag aat agc cac tgt cta ctg 336  
 Glu Gly Ala Met Ser Glu Gly Gly Gly Lys Asn Ser His Cys Leu Leu  
 97 102 107 112

acc tct acc gtg agg ccc aga gca aca gct tac gga gcc agt ggc cca 384  
 Thr Ser Thr Val Arg Pro Arg Ala Thr Ala Tyr Gly Ala Ser Gly Pro  
 113 118 123 128

gac cct ggc cca gcc cgt gtg gcc tcc aga cgt ctg ggg gcc gca gtt 432  
 Asp Pro Gly Pro Ala Arg Val Ala Ser Arg Arg Leu Gly Ala Ala Val  
 129 134 139 144

ggg ctt ctg agt gca gac acg ctg tgg cct ctc aat ggc ctt gcc agg 480  
 Gly Leu Leu Ser Ala Asp Thr Leu Trp Pro Leu Asn Gly Leu Ala Arg  
 145 150 155 160

gca ata gat gag gaa att gag gct ctg aga gat gac tct ggg gac gac 528  
 Ala Ile Asp Glu Glu Ile Glu Ala Leu Arg Asp Asp Ser Gly Asp Asp  
 161 166 171 176



gac gag gct acc acc cca gcc gac aag agc gag ctg cac cac acc ctg	576
Asp Glu Ala Thr Thr Pro Ala Asp Lys Ser Glu Leu His His Thr Leu	
177 182 187 192	
aag aat ctt tcc ctg aag tta gat gac ctc agc acg tgc aat gac ctc	624
Lys Asn Leu Ser Leu Lys Leu Asp Asp Leu Ser Thr Cys Asn Asp Leu	
193 198 203 208	
atc gcc aag cac ggc gct gca ctc cag cgc tcc ctg aca gag ctg gac	672
Ile Ala Lys His Gly Ala Ala Leu Gln Arg Ser Leu Thr Glu Leu Asp	
209 214 219 224	
ggc ctc aag atc cca tct gag agt ggg gag aag ctg aag gtg gtg aat	720
Gly Leu Lys Ile Pro Ser Glu Ser Gly Glu Lys Leu Lys Val Val Asn	
225 230 235 240	
gag cgg gcc acc ctc ttc cgc atc aca tcc aat gct atg atc aac ggc	768
Glu Arg Ala Thr Leu Phe Arg Ile Thr Ser Asn Ala Met Ile Asn Gly	
241 246 251 256	
gct gca gcc atc ctc acc tca tat cag gaa tgg ctt cag ccc cag ggg	816
Ala Ala Ala Ile Leu Thr Ser Tyr Gln Glu Trp Leu Gln Pro Gln Gly	
257 262 267 272	
ttt gag gga aca agg tgc tca gag gtg gtt tct gga ttg gga atc tgg	864
Phe Glu Gly Thr Arg Cys Ser Glu Val Val Ser Gly Leu Gly Ile Trp	
273 278 283 288	
aac agc aac gct gtg ttt caa ccc ccc acg cct tta cca gtg ctg tac	912
Asn Ser Asn Ala Val Phe Gln Pro Pro Thr Pro Leu Pro Val Leu Tyr	
289 294 299 304	
ctt cta gaa cac ccc ttc ctc acc ctt cag cac agc cag gat ggg gcc	960
Leu Leu Glu His Pro Phe Leu Thr Leu Gln His Ser Gln Asp Gly Ala	
305 310 315 320	
tgg aga agg ccg gca gca gca gag gag acc ctg gga gtc agg gat gga	1008
Trp Arg Arg Pro Ala Ala Ala Glu Glu Thr Leu Gly Val Arg Asp Gly	
321 326 331 336	
cac cag gtg agg act ggt gtg ccc atc ttc ctc ctt tgg ggt ggg aca	1056
His Gln Val Arg Thr Gly Val Pro Ile Phe Leu Leu Trp Gly Gly Thr	
337 342 347 352	
gcc tgt gat gtg cat gga gct cag tgg gtg ctc cag gcc tgc agg gac	1104
Ala Cys Asp Val His Gly Ala Gln Trp Val Leu Gln Ala Cys Arg Asp	
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Phe Leu Glu Leu Ala Glu Ile His Ser Arg Lys Trp Gln Arg Ala Leu	
369 374 379 384	
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Gln Tyr Glu Gln Glu Gln Arg Val His Leu Glu Glu Thr Ile Glu Gln	
385 390 395 400	

ctg gcg aag cag cac aac agc ctc gag cgg gcc ttc cac agt gcc cct	1248
Leu Ala Lys Gln His Asn Ser Leu Glu Arg Ala Phe His Ser Ala Pro	
401 406 411 416	
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Gly Arg Pro Ala Asn Pro Ser Lys Ser Phe Ile Glu Gly Ser Leu Leu	
417 422 427 432	
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Thr Pro Lys Gly Glu Asp Ser Glu Glu Asp Glu Asp Thr Glu Tyr Phe	
433 438 443 448	
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Asp Ala Met Glu Asp Ser Thr Ser Phe Ile Thr Val Ile Thr Glu Ala	
449 454 459 464	
aag gaa gac agc aga aaa gct gaa ggt agc acc ggg aca agt tcc gtg	1440
Lys Glu Asp Ser Arg Lys Ala Glu Gly Ser Thr Gly Thr Ser Ser Val	
465 470 475 480	
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Asp Trp Ser Ser Ala Asp Asn Val Leu Asp Gly Ala Ser Leu Val Pro	
481 486 491 496	
aag ggt tca tcc aaa gtc aag agg cga gtc cgc att ccc aac aag ccc	1536
Lys Gly Ser Ser Lys Val Lys Arg Arg Val Arg Ile Pro Asn Lys Pro	
497 502 507 512	
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Asn Tyr Ser Leu Asn Leu Trp Ser Ile Met Lys Asn Cys Ile Gly Arg	
513 518 523 528	
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Glu Leu Ser Arg Ile Pro Met Pro Val Asn Phe Asn Glu Pro Leu Ser	
529 534 539 544	
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545 550 555 560	
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593 598 603 608	
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Asp Met Gly Leu Arg Ser Leu Cys Glu Gln Val Ser His His Pro Pro	
609 614 619 624	
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849	854	859	864	
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Glu Gly Val Lys Ala Phe Asp Lys Ile Gln Pro Val Ser Arg Gly His				
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agc cca cgt ttc att ctg tgt gac tgc tgc ccc ctg gcg ccc aac tca				2688
Ser Pro Arg Phe Ile Leu Cys Asp Cys Cys Pro Leu Ala Pro Asn Ser				
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ggc agg act ggc aac tac cgg aag ctc gcg agg ctt cca aag cgc atg				2736
Gly Arg Thr Gly Asn Tyr Arg Lys Leu Ala Arg Leu Pro Lys Arg Met				
897	902	907	912	
cgc agg tca cgg tac ggg cac gtg cgg cgc gcc agc aaa acc acg cag				2784
Arg Arg Ser Arg Tyr Gly His Val Arg Arg Ala Ser Lys Thr Thr Gln				
913	918	923	928	
gcg tct tgt cgc ttc cgc ctc gag cgt gtg gcg gga ttg cgg aag ccc				2832
Ala Ser Cys Arg Phe Arg Leu Glu Arg Val Ala Gly Leu Arg Lys Pro				
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ggccttggt ttagtattgc tggaggtcga gactgcattc gtggacag atg ggg att	177
	Met Gly Ile
	1
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Phe Val Lys Thr Ile Phe Pro Asn Gly Ser Ala Ala Glu Asp Gly Arg	
4 9 14 19	
ctt aaa gaa ggg gat gaa atc cta gat gta aat gga ata cca ata aag	273
Leu Lys Glu Gly Asp Glu Ile Leu Asp Val Asn Gly Ile Pro Ile Lys	
20 25 30 35	
ggc ttg aca ttt caa gaa gcc att cat acc ttt aag caa atc cgg agt	321

Gly	Leu	Thr	Phe	Gln	Glu	Ala	Ile	His	Thr	Phe	Lys	Gln	Ile	Arg	Ser		
36					41					46					51		
gga	tta	ttt	gtt	tta	acg	gta	cgc	aca	aag	ttg	gtg	agc	ccc	agc	ctc	369	
Gly	Leu	Phe	Val	Leu	Thr	Val	Arg	Thr	Lys	Leu	Val	Ser	Pro	Ser	Leu		
52					57					62					67		
aca	ccc	tgc	tgc	aca	ccc	aca	cac	atg	agc	aga	tcc	gcc	tcc	ccg	aac	417	
Thr	Pro	Cys	Ser	Thr	Pro	Thr	His	Met	Ser	Arg	Ser	Ala	Ser	Pro	Asn		
68					73					78					83		
ttc	aat	acc	agt	ggg	gga	gcc	tgc	gcg	gga	ggg	tcc	gat	gaa	ggc	agt	465	
Phe	Asn	Thr	Ser	Gly	Gly	Ala	Ser	Ala	Gly	Gly	Ser	Asp	Glu	Gly	Ser		
84					89					94					99		
tct	tca	tcc	ctg	ggg	cgg	aag	acc	cct	ggg	ccc	aag	gac	agg	atc	gtc	513	
Ser	Ser	Ser	Leu	Gly	Arg	Lys	Thr	Pro	Gly	Pro	Lys	Asp	Arg	Ile	Val		
100					105					110					115		
atg	gaa	gta	aca	ctc	aac	aaa	gag	cca	aga	gtt	gga	tta	ggc	att	ggg	561	
Met	Glu	Val	Thr	Leu	Asn	Lys	Glu	Pro	Arg	Val	Gly	Leu	Gly	Ile	Gly		
116					121					126					131		
gcc	tgc	tgc	ttg	gct	ctg	gaa	aac	agt	cct	cct	ggc	atc	tac	att	cac	609	
Ala	Cys	Cys	Leu	Ala	Leu	Glu	Asn	Ser	Pro	Pro	Gly	Ile	Tyr	Ile	His		
132					137					142					147		
agc	ctt	gct	cca	gga	tca	gtg	gcc	aag	atg	gag	agc	aac	ctg	agc	cgc	657	
Ser	Leu	Ala	Pro	Gly	Ser	Val	Ala	Lys	Met	Glu	Ser	Asn	Leu	Ser	Arg		
148					153					158					163		
ggg	gat	caa	atc	ctg	gaa	gtg	aac	tcc	gtc	aac	gtc	cgc	cat	gct	gct	705	
Gly	Asp	Gln	Ile	Leu	Glu	Val	Asn	Ser	Val	Asn	Val	Arg	His	Ala	Ala		
164					169					174					179		
tta	agc	aaa	gtc	cac	gcc	atc	ttg	agt	aaa	tgc	cct	cca	gga	ccc	gtt	753	
Leu	Ser	Lys	Val	His	Ala	Ile	Leu	Ser	Lys	Cys	Pro	Pro	Gly	Pro	Val		
180					185					190					195		
cgc	ctt	gtc	atc	ggc	cgg	cac	cct	aat	cca	aag	gac	tcc	ctt	att	tct	801	
Arg	Leu	Val	Ile	Gly	Arg	His	Pro	Asn	Pro	Lys	Asp	Ser	Leu	Ile	Ser		
196					201					206					211		
gaa	tct	gaa	ctc	tcc	cag	tac	ttt	gcc	cac	gat	gtc	cct	ggc	ccc	ttg	849	
Glu	Ser	Glu	Leu	Ser	Gln	Tyr	Phe	Ala	His	Asp	Val	Pro	Gly	Pro	Leu		
212					217					222					227		
tca	gac	ttc	atg	gtg	gcc	ggg	tct	gag	gac	gag	gat	cac	ccg	gga	agt	897	
Ser	Asp	Phe	Met	Val	Ala	Gly	Ser	Glu	Asp	Glu	Asp	His	Pro	Gly	Ser		
228					233					238					243		
ggc	tgc	agc	acg	tgc	gag	gag	ggc	agc	ctg	cct	ccc	agc	acc	tcc	act	945	
Gly	Cys	Ser	Thr	Ser	Glu	Glu	Gly	Ser	Leu	Pro	Pro	Ser	Thr	Ser	Thr		
244					249					254					259		
cac	aag	gag	cct	gga	aaa	ccc	aga	gcc	aac	agc	ctc	gtg	act	ctt	ggg	993	
His	Lys	Glu	Pro	Gly	Lys	Pro	Arg	Ala	Asn	Ser	Leu	Val	Thr	Leu	Gly		

260	265	270	275	
agc cat cgg gct tct ggg ctc ttc cac aag	cag gtg aca gtt gcc aga	1041		
Ser His Arg Ala Ser Gly Leu Phe His Lys	Gln Val Thr Val Ala Arg			
276	281	286	291	
caa gcc agt ctc ccc gga agc cca cag gcc ctc cga aac cct ctc ctc		1089		
Gln Ala Ser Leu Pro Gly Ser Pro Gln Ala Leu Arg Asn Pro Leu Leu				
292	297	302	307	
cgc cag agg aag gta ggc tgc tac gat gcc aac gat gcc agt gat gag		1137		
Arg Gln Arg Lys Val Gly Cys Tyr Asp Ala Asn Asp Ala Ser Asp Glu				
308	313	318	323	
gaa gag ttt gac aga gaa ggg gac tgc att tca ctc cca ggg gcc ctc		1185		
Glu Glu Phe Asp Arg Glu Gly Asp Cys Ile Ser Leu Pro Gly Ala Leu				
324	329	334	339	
ccg ggt ccc atc agg cct ctg tca gag gat gac ccg agg cgt gtc tca		1233		
Pro Gly Pro Ile Arg Pro Leu Ser Glu Asp Asp Pro Arg Arg Val Ser				
340	345	350	355	
att tcc tct tcc aag ggc atg gac gtc cac aac caa gag gaa cga ccc		1281		
Ile Ser Ser Ser Lys Gly Met Asp Val His Asn Gln Glu Glu Arg Pro				
356	361	366	371	
cgg aaa aca ctg gtg agc aag gcc atc tgc gca cct ctt ctt ggt agc		1329		
Arg Lys Thr Leu Val Ser Lys Ala Ile Ser Ala Pro Leu Leu Gly Ser				
372	377	382	387	
tca gtg gac tta gag gag agt atc cca gag ggc atg gtg gat gct gcg		1377		
Ser Val Asp Leu Glu Glu Ser Ile Pro Glu Gly Met Val Asp Ala Ala				
388	393	398	403	
tcc tat gca gcc aac ctc acg gac tct gca gag gcc ccc aag ggg agc		1425		
Ser Tyr Ala Ala Asn Leu Thr Asp Ser Ala Glu Ala Pro Lys Gly Ser				
404	409	414	419	
cct gga agc tgg tgg aag aag gaa ctg tca gga tca agt agc gca ccc		1473		
Pro Gly Ser Trp Trp Lys Lys Glu Leu Ser Gly Ser Ser Ser Ala Pro				
420	425	430	435	
aaa ttg gaa tac aca gtc cgt aca gac acc cag agt ccg acg aac act		1521		
Lys Leu Glu Tyr Thr Val Arg Thr Asp Thr Gln Ser Pro Thr Asn Thr				
436	441	446	451	
ggg agc ccc agt tcc ccc cag cag aaa agt gaa ggc ctg ggc tcc agg		1569		
Gly Ser Pro Ser Ser Pro Gln Gln Lys Ser Glu Gly Leu Gly Ser Arg				
452	457	462	467	
cac aga cca gtg gcc agg gta agc ccc cac tgc aag aga tcc gag gct		1617		
His Arg Pro Val Ala Arg Val Ser Pro His Cys Lys Arg Ser Glu Ala				
468	473	478	483	
gag gcc aag ccc agt ggc tca cag aca gtg aac ctg act ggc aga gcc		1665		
Glu Ala Lys Pro Ser Gly Ser Gln Thr Val Asn Leu Thr Gly Arg Ala				
484	489	494	499	

aat gat cca tgc gat ctg gac tcg aga gtc cag gcc act tct gtc aaa	1713
Asn Asp Pro Cys Asp Leu Asp Ser Arg Val Gln Ala Thr Ser Val Lys	
500 505 510 515	
gtg act gtc gct ggc ttt cag cca ggt gga gct gtg gag aag gaa tct	1761
Val Thr Val Ala Gly Phe Gln Pro Gly Gly Ala Val Glu Lys Glu Ser	
516 521 526 531	
ctg gga aag ctg acc act gga gat gct tgt gtc tct acc agc tgt gaa	1809
Leu Gly Lys Leu Thr Thr Gly Asp Ala Cys Val Ser Thr Ser Cys Glu	
532 537 542 547	
cta gcc agt gct ctg tcc cat ctg gat gcc agc cac ctc aca gag aac	1857
Leu Ala Ser Ala Leu Ser His Leu Asp Ala Ser His Leu Thr Glu Asn	
548 553 558 563	
ctg ccc aaa gct gca tca gag ctg ggg caa caa ccc atg act gaa ctg	1905
Leu Pro Lys Ala Ala Ser Glu Leu Gly Gln Gln Pro Met Thr Glu Leu	
564 569 574 579	
gac agc tcc tcg gac ctc atc tct tcc cca ggg aag aag ggg gcc gct	1953
Asp Ser Ser Ser Asp Leu Ile Ser Ser Pro Gly Lys Lys Gly Ala Ala	
580 585 590 595	
cat cct gac ccc agc aag acc tct gta gac aca ggg aaa gtc agt cgg	2001
His Pro Asp Pro Ser Lys Thr Ser Val Asp Thr Gly Lys Val Ser Arg	
596 601 606 611	
cca gag aat ccc agc cag cct gca tcg ccc agg gtc gcc aag tgc aag	2049
Pro Glu Asn Pro Ser Gln Pro Ala Ser Pro Arg Val Ala Lys Cys Lys	
612 617 622 627	
gcc agg tct cca gtc agg ctc ccc cat gag ggc agc ccc tcc cca ggg	2097
Ala Arg Ser Pro Val Arg Leu Pro His Glu Gly Ser Pro Ser Pro Gly	
628 633 638 643	
gag aaa gca gcg gct ccc cct gac tac agc aag act cga tca gca tcg	2145
Glu Lys Ala Ala Ala Pro Pro Asp Tyr Ser Lys Thr Arg Ser Ala Ser	
644 649 654 659	
gaa acc agc aca ccc cac aat acc agg agg gtg gct gcc ctc agg gga	2193
Glu Thr Ser Thr Pro His Asn Thr Arg Arg Val Ala Ala Leu Arg Gly	
660 665 670 675	
gcg gga cct gga gca gag gga atg aca cca gct ggt gct gtc ctg cca	2241
Ala Gly Pro Gly Ala Glu Gly Met Thr Pro Ala Gly Ala Val Leu Pro	
676 681 686 691	
gga gac ccc ctc aca tcc cag gag cag aga cag gga gct cca ggt aac	2289
Gly Asp Pro Leu Thr Ser Gln Glu Gln Arg Gln Gly Ala Pro Gly Asn	
692 697 702 707	
cac agt aag gct ctg gaa atg aca gga atc cat gca cct gaa agc tcc	2337
His Ser Lys Ala Leu Glu Met Thr Gly Ile His Ala Pro Glu Ser Ser	
708 713 718 723	

cag gag cct tcc ctg ctg gag gga gca gat tct gtg tcc tca agg gca	2385
Gln Glu Pro Ser Leu Leu Glu Gly Ala Asp Ser Val Ser Ser Arg Ala	
724 729 734 739	
ccg cag gcc agc ctc tcc atg ctg cca tcc act gac aac acc aaa gaa	2433
Pro Gln Ala Ser Leu Ser Met Leu Pro Ser Thr Asp Asn Thr Lys Glu	
740 745 750 755	
gca tgt ggc cat gtc tcg ggg cac tgc tgc ccg ggg ggg agt aga gag	2481
Ala Cys Gly His Val Ser Gly His Cys Cys Pro Gly Gly Ser Arg Glu	
756 761 766 771	
agc cct gtg acg gac att gac agc ttc atc aag gag ctg gat gct tct	2529
Ser Pro Val Thr Asp Ile Asp Ser Phe Ile Lys Glu Leu Asp Ala Ser	
772 777 782 787	
gca gca agg tct ccg tct tcc cag acg ggg gac agt ggc tct cag gag	2577
Ala Ala Arg Ser Pro Ser Ser Gln Thr Gly Asp Ser Gly Ser Gln Glu	
788 793 798 803	
ggc agt gct cag ggc cac cca cca gcc ggg gct gga ggt ggg agc tcc	2625
Gly Ser Ala Gln Gly His Pro Pro Ala Gly Ala Gly Gly Gly Ser Ser	
804 809 814 819	
tgc cgt gcc gaa cca gtc ccg ggg ggc cag acc tcc tcc ccg agg agg	2673
Cys Arg Ala Glu Pro Val Pro Gly Gly Gln Thr Ser Ser Pro Arg Arg	
820 825 830 835	
gcc tgg gct gct ggt gcc ccc gcc tac cca caa tgg gcc tcc cag cct	2721
Ala Trp Ala Ala Gly Ala Pro Ala Tyr Pro Gln Trp Ala Ser Gln Pro	
836 841 846 851	
tcg gtt tta gat tca att aat ccc gac aaa cat ttt act gtg aac aaa	2769
Ser Val Leu Asp Ser Ile Asn Pro Asp Lys His Phe Thr Val Asn Lys	
852 857 862 867	
aac ttt ctg agc aac tac tct aga aat ttt agc agt ttt cat gaa gac	2817
Asn Phe Leu Ser Asn Tyr Ser Arg Asn Phe Ser Ser Phe His Glu Asp	
868 873 878 883	
agc acc tcc cta tca ggc ctg ggt gac agc acg gag ccg tct ctg tca	2865
Ser Thr Ser Leu Ser Gly Leu Gly Asp Ser Thr Glu Pro Ser Leu Ser	
884 889 894 899	
tcc atg tat ggc gat gct gag gat tct tct tct gac cct gag tca ctc	2913
Ser Met Tyr Gly Asp Ala Glu Asp Ser Ser Ser Asp Pro Glu Ser Leu	
900 905 910 915	
act gaa gcc cca cga gct tct gcc agg gac ggc tgg tcc cct cct cgt	2961
Thr Glu Ala Pro Arg Ala Ser Ala Arg Asp Gly Trp Ser Pro Pro Arg	
916 921 926 931	
tcc cgt gtg tct ttg cac aag gaa gat cct tcg gag tca gaa gag gaa	3009
Ser Arg Val Ser Leu His Lys Glu Asp Pro Ser Glu Ser Glu Glu Glu	
932 937 942 947	
cag att gag att tgt tcc aca cgt ggc tgc ccc aat cca ccc tcg agt	3057



Gln Ile Glu Ile Cys Ser Thr Arg Gly Cys Pro Asn Pro Pro Ser Ser	
948 953 958 963	
cct gct cat ctt ccc acc cag gct gcc atc tgt cct gcc tca gcc aaa	3105
Pro Ala His Leu Pro Thr Gln Ala Ala Ile Cys Pro Ala Ser Ala Lys	
964 969 974 979	
gtt ctg tca tta aaa tac agc act ccg aga gag tcg gtg gcc agt ccc	3153
Val Leu Ser Leu Lys Tyr Ser Thr Pro Arg Glu Ser Val Ala Ser Pro	
980 985 990 995	
cgt gag aag gcc gcc tgc ttg cca ggc tca tac act tca ggc cca gac	3201
Arg Glu Lys Ala Ala Cys Leu Pro Gly Ser Tyr Thr Ser Gly Pro Asp	
996 1001 1006 1011	
tct tcc cag cca tca tca ctc ttg gag atg agc tct cag gag cat gaa	3249
Ser Ser Gln Pro Ser Ser Leu Leu Glu Met Ser Ser Gln Glu His Glu	
1012 1017 1022 1027	
act cat gcg gac ata agc act tca cag aac cac agg ccc tcg tgt gca	3297
Thr His Ala Asp Ile Ser Thr Ser Gln Asn His Arg Pro Ser Cys Ala	
1028 1033 1038 1043	
gaa gaa acc aca gaa gtc acc agc gct agc tca gcc atg gaa aac agt	3345
Glu Glu Thr Thr Glu Val Thr Ser Ala Ser Ser Ala Met Glu Asn Ser	
1044 1049 1054 1059	
ccg ctg tct aaa gta gcc agg cat ttt cac agt ccg ccc atc att ctc	3393
Pro Leu Ser Lys Val Ala Arg His Phe His Ser Pro Pro Ile Ile Leu	
1060 1065 1070 1075	
agc tcc ccc aac atg gta aat ggc ttg gaa cat gac ctg cta gat gac	3441
Ser Ser Pro Asn Met Val Asn Gly Leu Glu His Asp Leu Leu Asp Asp	
1076 1081 1086 1091	
gaa acc ctg aat caa tac gaa aca agc att aat gca gct gcc agt ctg	3489
Glu Thr Leu Asn Gln Tyr Glu Thr Ser Ile Asn Ala Ala Ala Ser Leu	
1092 1097 1102 1107	
tcc tcc ttc agt gtg gat gtc cct aag aat gga gaa tct gtt ttg gaa	3537
Ser Ser Phe Ser Val Asp Val Pro Lys Asn Gly Glu Ser Val Leu Glu	
1108 1113 1118 1123	
aac ctc cac atc tct gaa agt caa gac ctg gat gac ttg cta cag aaa	3585
Asn Leu His Ile Ser Glu Ser Gln Asp Leu Asp Asp Leu Leu Gln Lys	
1124 1129 1134 1139	
cca aaa atg atc gct agg agg ccc atc atg gcc tgg ttt aaa gaa ata	3633
Pro Lys Met Ile Ala Arg Arg Pro Ile Met Ala Trp Phe Lys Glu Ile	
1140 1145 1150 1155	
aat aaa cat aac caa ggc aca cat ttg agg agc aaa acc gag aag gaa	3681
Asn Lys His Asn Gln Gly Thr His Leu Arg Ser Lys Thr Glu Lys Glu	
1156 1161 1166 1171	
caa cct cta atg cct gcc aga agt ccc gac tcc aag att cag atg gtg	3729
Gln Pro Leu Met Pro Ala Arg Ser Pro Asp Ser Lys Ile Gln Met Val	

1172	1177	1182	1187	
agt tca agc caa aaa aag ggc gtt act gtg cct cat agc cct cct cag				3777
Ser Ser Ser Gln Lys Lys Gly Val Thr Val Pro His Ser Pro Pro Gln				
1188	1193	1198	1203	
ccg aaa aca aac ctg gaa aat aag gac ctg tct aag aag agt ccg gca				3825
Pro Lys Thr Asn Leu Glu Asn Lys Asp Leu Ser Lys Lys Ser Pro Ala				
1204	1209	1214	1219	
gaa atg ctt ctg act aat ggt cag aag gca aag tgt ggt ccg aag ctg				3873
Glu Met Leu Leu Thr Asn Gly Gln Lys Ala Lys Cys Gly Pro Lys Leu				
1220	1225	1230	1235	
aag agg ctc agc ctc aag ggc aag gcc aaa gtc aac tct gag gcc cct				3921
Lys Arg Leu Ser Leu Lys Gly Lys Ala Lys Val Asn Ser Glu Ala Pro				
1236	1241	1246	1251	
gct gcg aat gct gtg aag gct ggg ggg acg gac cac agg aaa ccc ttg				3969
Ala Ala Asn Ala Val Lys Ala Gly Gly Thr Asp His Arg Lys Pro Leu				
1252	1257	1262	1267	
atc tca ccc cag acc tcc cac aaa aca ctt tct aag gca gtg tca cag				4017
Ile Ser Pro Gln Thr Ser His Lys Thr Leu Ser Lys Ala Val Ser Gln				
1268	1273	1278	1283	
cgg ctc cat gta gcc gac cac gag gac cct gac aga aac acc aca gct				4065
Arg Leu His Val Ala Asp His Glu Asp Pro Asp Arg Asn Thr Thr Ala				
1284	1289	1294	1299	
gcc ccc agg tcc ccc cag tgt gtg ctg gaa agc aag cca cct ctt gcc				4113
Ala Pro Arg Ser Pro Gln Cys Val Leu Glu Ser Lys Pro Pro Leu Ala				
1300	1305	1310	1315	
acc tct ggg cca ctg aaa ccc tca gtg tct gac acg agc atc agg aca				4161
Thr Ser Gly Pro Leu Lys Pro Ser Val Ser Asp Thr Ser Ile Arg Thr				
1316	1321	1326	1331	
ttt gtc tcg ccc ctg acc tct ccc aag cct gtt cct gag caa ggc atg				4209
Phe Val Ser Pro Leu Thr Ser Pro Lys Pro Val Pro Glu Gln Gly Met				
1332	1337	1342	1347	
tgg agc agg ttc cac atg gct gtc ctc tct gaa ccc gac aga ggt tgc				4257
Trp Ser Arg Phe His Met Ala Val Leu Ser Glu Pro Asp Arg Gly Cys				
1348	1353	1358	1363	
cca acc acc cct aaa tct cct aag tgt aga gca gag ggc agg gcg ccc				4305
Pro Thr Thr Pro Lys Ser Pro Lys Cys Arg Ala Glu Gly Arg Ala Pro				
1364	1369	1374	1379	
cgt gct gac tcc ggg ccg gtg agt ccg gca gcg tct agg aac ggc atg				4353
Arg Ala Asp Ser Gly Pro Val Ser Pro Ala Ala Ser Arg Asn Gly Met				
1380	1385	1390	1395	
tcc gtg gca ggg aac aga cag agt gag ccg cgc ctg gcc agc cat gtg				4401
Ser Val Ala Gly Asn Arg Gln Ser Glu Pro Arg Leu Ala Ser His Val				
1396	1401	1406	1411	

gca gca gac aca gcc caa ccc agg ccg act ggc gaa aaa gga ggc aac	4449
Ala Ala Asp Thr Ala Gln Pro Arg Pro Thr Gly Glu Lys Gly Gly Asn	
1412 1417 1422 1427	
ata atg gcc agc gat cgc ctc gaa aga aca aac cag ctg aaa atc gtg	4497
Ile Met Ala Ser Asp Arg Leu Glu Arg Thr Asn Gln Leu Lys Ile Val	
1428 1433 1438 1443	
gag att tct gct gaa gca gtg tca gag act gta tgt ggt aac aag cca	4545
Glu Ile Ser Ala Glu Ala Val Ser Glu Thr Val Cys Gly Asn Lys Pro	
1444 1449 1454 1459	
gct gaa agc gac aga cgg gga ggg tgc ttg gcc cag ggc aac tgt cag	4593
Ala Glu Ser Asp Arg Arg Gly Gly Cys Leu Ala Gln Gly Asn Cys Gln	
1460 1465 1470 1475	
gag aag agt gaa atc agg ctc tat cgc cag gtc gca gaa tca tcc aca	4641
Glu Lys Ser Glu Ile Arg Leu Tyr Arg Gln Val Ala Glu Ser Ser Thr	
1476 1481 1486 1491	
agt cat cca tcc tca ctc cca tct cat gcc tcc cag gca gag cag gaa	4689
Ser His Pro Ser Ser Leu Pro Ser His Ala Ser Gln Ala Glu Gln Glu	
1492 1497 1502 1507	
atg tca cga tca ttc agc atg aca aaa ctg gcg tcc tcc tcc tcc tcc	4737
Met Ser Arg Ser Phe Ser Met Thr Lys Leu Ala Ser Ser Ser Ser Ser	
1508 1513 1518 1523	
ctt caa aca gcc att aga aag gca gaa tac tcc cag gga aaa tca agc	4785
Leu Gln Thr Ala Ile Arg Lys Ala Glu Tyr Ser Gln Gly Lys Ser Ser	
1524 1529 1534 1539	
ctg atg tca gac tcc cga ggg gtg ccc aga aac agc att cca ggg ggc	4833
Leu Met Ser Asp Ser Arg Gly Val Pro Arg Asn Ser Ile Pro Gly Gly	
1540 1545 1550 1555	
ccc tcg ggg gag gac cat ctc tac ttc acc cca agg cca gcg acc agg	4881
Pro Ser Gly Glu Asp His Leu Tyr Phe Thr Pro Arg Pro Ala Thr Arg	
1556 1561 1566 1571	
acc tac tcc atg cca gcc cag ttc tca agc cat ttt gga cgg gag ggt	4929
Thr Tyr Ser Met Pro Ala Gln Phe Ser Ser His Phe Gly Arg Glu Gly	
1572 1577 1582 1587	
cac ccc cca cac agc ctg ggt cgc tct cgg gac agc cag gtc cct gtg	4977
His Pro Pro His Ser Leu Gly Arg Ser Arg Asp Ser Gln Val Pro Val	
1588 1593 1598 1603	
aca agc agt gtt gtc ccc gag gca aag gca tcc aga ggt ggt ctt ccc	5025
Thr Ser Ser Val Val Pro Glu Ala Lys Ala Ser Arg Gly Gly Leu Pro	
1604 1609 1614 1619	
agc ctg gct aat gga cag ggc ata tat agt gta aag ccg ctg ctg gac	5073
Ser Leu Ala Asn Gly Gln Gly Ile Tyr Ser Val Lys Pro Leu Leu Asp	
1620 1625 1630 1635	

aca tcg agg aat ctt cca gcc aca gat gaa ggg gat atc att tca gtc	5121
Thr Ser Arg Asn Leu Pro Ala Thr Asp Glu Gly Asp Ile Ile Ser Val	
1636 1641 1646 1651	
cag gag acg agc tgc cta gtc aca gac aaa atc aaa gtc acc aga cga	5169
Gln Glu Thr Ser Cys Leu Val Thr Asp Lys Ile Lys Val Thr Arg Arg	
1652 1657 1662 1667	
cac tac tgc tat gag cag aac tgg ccc cat gaa tct acc tca ttt ttc	5217
His Tyr Cys Tyr Glu Gln Asn Trp Pro His Glu Ser Thr Ser Phe Phe	
1668 1673 1678 1683	
tct gtg aag cag cgg atc aag tct ttt gag aac ctg gcc aat gct gac	5265
Ser Val Lys Gln Arg Ile Lys Ser Phe Glu Asn Leu Ala Asn Ala Asp	
1684 1689 1694 1699	
cgg cct gta gcc aag tcc ggg gct tcc cca ttt ttg tgc gtg agc tcc	5313
Arg Pro Val Ala Lys Ser Gly Ala Ser Pro Phe Leu Ser Val Ser Ser	
1700 1705 1710 1715	
aag cct ccc att ggg agg cgg tct tcc ggc agc att gtt tcc ggg agc	5361
Lys Pro Pro Ile Gly Arg Arg Ser Ser Gly Ser Ile Val Ser Gly Ser	
1716 1721 1726 1731	
ctg ggc cac cca ggt gac gca gca gca agg ttg ttg aga cgc agc ttg	5409
Leu Gly His Pro Gly Asp Ala Ala Ala Arg Leu Leu Arg Arg Ser Leu	
1732 1737 1742 1747	
agt tcc tgc agc gaa aac caa agc gaa gcc ggc acc ctc ctg ccc cag	5457
Ser Ser Cys Ser Glu Asn Gln Ser Glu Ala Gly Thr Leu Leu Pro Gln	
1748 1753 1758 1763	
atg gcc aag tct ccc tca atc atg aca ctg acc atc tct cgg cag aac	5505
Met Ala Lys Ser Pro Ser Ile Met Thr Leu Thr Ile Ser Arg Gln Asn	
1764 1769 1774 1779	
cca cca gag acc agt agc aag ggc tct gat tgc gaa cta aag aaa tca	5553
Pro Pro Glu Thr Ser Ser Lys Gly Ser Asp Ser Glu Leu Lys Lys Ser	
1780 1785 1790 1795	
ctt ggt cct ttg gga att ccc acc cca acg atg acc ctg gct tct cct	5601
Leu Gly Pro Leu Gly Ile Pro Thr Pro Thr Met Thr Leu Ala Ser Pro	
1796 1801 1806 1811	
gtt aag agg aac aag tcc tgc gta cgc cac acg cag ccc tgc ccc gtg	5649
Val Lys Arg Asn Lys Ser Ser Val Arg His Thr Gln Pro Ser Pro Val	
1812 1817 1822 1827	
tcc cgc tcc aag ctc cag gag ctg aga gcc ttg agc atg cct gac ctt	5697
Ser Arg Ser Lys Leu Gln Glu Leu Arg Ala Leu Ser Met Pro Asp Leu	
1828 1833 1838 1843	
gac aag ctc tgc agc gag gat tac tca gca ggg ccg agc gcc gtg ctc	5745
Asp Lys Leu Cys Ser Glu Asp Tyr Ser Ala Gly Pro Ser Ala Val Leu	
1844 1849 1854 1859	
ttc aaa act gag ctg gag atc acc ccc agg agg tca cct ggc cct cct	5793

Phe Lys Thr Glu Leu Glu Ile Thr Pro Arg Arg Ser Pro Gly Pro Pro	
1860 1865 1870 1875	
gct gga ggc gtt tgc tgt ccc gag aag ggc ggg aac agg gcc tgt cca	5841
Ala Gly Gly Val Ser Cys Pro Glu Lys Gly Gly Asn Arg Ala Cys Pro	
1876 1881 1886 1891	
gga gga agt ggc cct aaa acc agt gct gct gag aca ccc agt tca gcc	5889
Gly Gly Ser Gly Pro Lys Thr Ser Ala Ala Glu Thr Pro Ser Ser Ala	
1892 1897 1902 1907	
agt gat acg ggt gaa gct gcc cag gat ctg cct ttt aga aga agc tgg	5937
Ser Asp Thr Gly Glu Ala Ala Gln Asp Leu Pro Phe Arg Arg Ser Trp	
1908 1913 1918 1923	
tca gtt aat ttg gat caa ctt cta gtc tca gcg ggg gac cag caa aga	5985
Ser Val Asn Leu Asp Gln Leu Leu Val Ser Ala Gly Asp Gln Gln Arg	
1924 1929 1934 1939	
tta cag tct gtt tta tgc tca gtg gga tgc aaa tct acc atc cta act	6033
Leu Gln Ser Val Leu Ser Ser Val Gly Ser Lys Ser Thr Ile Leu Thr	
1940 1945 1950 1955	
ctc att cag gaa gcg aaa gca caa tca gag aat gaa gaa gat gtt tgc	6081
Leu Ile Gln Glu Ala Lys Ala Gln Ser Glu Asn Glu Glu Asp Val Cys	
1956 1961 1966 1971	
ttc ata gtc ttg aat aga aaa gaa ggc tca ggt ctg gga ttc agt gtg	6129
Phe Ile Val Leu Asn Arg Lys Glu Gly Ser Gly Leu Gly Phe Ser Val	
1972 1977 1982 1987	
gca gga ggg aca gat gtg gag cca aaa tca atc acg gtc cac agg gtg	6177
Ala Gly Gly Thr Asp Val Glu Pro Lys Ser Ile Thr Val His Arg Val	
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Phe Ser Gln Gly Ala Ala Ser Gln Glu Gly Thr Met Asn Arg Gly Asp	
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Asn Val Leu Lys Val Leu His Gln Ala Gln Leu His Lys Asp Ala Leu	
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Val Val Ile Lys Lys Gly Met Asp Gln Pro Arg Pro Ser Ala Arg Gln	
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Glu Pro Pro Thr Ala Asn Gly Lys Gly Leu Leu Ser Arg Lys Thr Ile	
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Pro Leu Glu Pro Gly Ile Gly Arg Ser Val Ala Val His Asp Ala Leu	

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Cys Val Glu Val Leu Lys Thr Ser Ala Gly Leu Gly Leu Ser Leu Asp				
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Gly Gly Lys Ser Ser Val Thr Gly Asp Gly Pro Leu Val Ile Lys Arg				
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Val Tyr Lys Gly Gly Val Ala Glu Gln Ala Gly Ile Ile Glu Ala Gly				
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Asp Glu Ile Leu Ala Ile Asn Gly Lys Pro Leu Val Gly Leu Met His				
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 Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro  
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Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys				
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Ser Lys Ala Val Pro Trp Val Ile Leu Ser Asp Gly Asp Gly Thr Val				
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Val	Phe	Phe	Ser	Leu	Val	Phe	Ser	Val	Phe	Ala	Ile	Val	Ile	Gly	Ile	
283					288					293					298	
ata	ctc	tac	aac	aaa	tgg	cag	gaa	cag	agc	cga	aag	cgc	ttc	tac	tga	964
Ile	Leu	Tyr	Asn	Lys	Trp	Gln	Glu	Gln	Ser	Arg	Lys	Arg	Phe	Tyr	*	
299					304					309					314	
gccctcctgc	tgccaccact	tttgtgactg	tcacccatga	ggatggaag	gagcaggcac											1024
tggcctgagc	atgcagcctg	gagagtgttc	ttgtctctag	cagctgggttg	gggactatat											1084
tctgtcactg	gagttttgaa	tgcagggacc	ccgcattccc	atggttggtgc	atggggacat											1144

ctaactctgg tctgggaagc caccaccccc agggcaatgc tgctgtgatg tgcttttccc 1204  
 tgcagtcctt ccatgtggga gcagaggtgt gaagagaatt tacgtgggtg tgatgccaaa 1264  
 atcacagaac agaatttcat agcccaggct gccgtgttgt ttgactcaga aggcccttct 1324  
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 <212> DNA  
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<400> 352

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 Met Gln Pro Pro Pro Gly Pro Leu Gly Asp Cys Leu Arg Asp Trp  
 1 5 10 15  
 gag gat cta cag cag gac ttc cag aac atc cag gag acc cat ccg ctc 152  
 Glu Asp Leu Gln Gln Asp Phe Gln Asn Ile Gln Glu Thr His Arg Leu  
 17 22 27 32  
 tac cgc ctg aag ctg gag gag ctg acc aaa ctt cag aac aat tgc acc 200  
 Tyr Arg Leu Lys Leu Glu Glu Leu Thr Lys Leu Gln Asn Asn Cys Thr  
 33 38 43 48  
 agc tcc atc acg cgg cag aag aag cgg ctc cag gag ctg gcc ctc gcc 248  
 Ser Ser Ile Thr Arg Gln Lys Lys Arg Leu Gln Glu Leu Ala Leu Ala  
 49 54 59 64  
 ctg aag aaa tgc aaa ccc tcc ctc cca gca gag gcc gag ggg gcc gca 296  
 Leu Lys Lys Cys Lys Pro Ser Leu Pro Ala Glu Ala Glu Gly Ala Ala  
 65 70 75 80  
 cag gag ctg gag aac cag atg aaa gag cgc caa ggc ctc ttc ttt gac 344  
 Gln Glu Leu Glu Asn Gln Met Lys Glu Arg Gln Gly Leu Phe Phe Asp  
 81 86 91 96  
 atg gag gcc tat ttg cct aag aag aat gga ttg tac ctg agc ctg gtt 392  
 Met Glu Ala Tyr Leu Pro Lys Lys Asn Gly Leu Tyr Leu Ser Leu Val  
 97 102 107 112  
 ctg ggg aac gtc aac gtc acg ctc ctg agc aag cag gct aag ttt gcc 440  
 Leu Gly Asn Val Asn Val Thr Leu Leu Ser Lys Gln Ala Lys Phe Ala  
 113 118 123 128  
 tac aag gac gag tat gag aag ttc aag ctc tac ctc acc atc atc ctc 488  
 Tyr Lys Asp Glu Tyr Glu Lys Phe Lys Leu Tyr Leu Thr Ile Ile Leu  
 129 134 139 144

atc ctc atc tcc ttc act tgc cgc ttc ctg ctc aac tcc agg gtg aca	536
Ile Leu Ile Ser Phe Thr Cys Arg Phe Leu Leu Asn Ser Arg Val Thr	
145 150 155 160	
gat gct gcc ttc aac ttc ctg ctg gtc tgg tac tac tgc acc ctg acc	584
Asp Ala Ala Phe Asn Phe Leu Leu Val Trp Tyr Tyr Cys Thr Leu Thr	
161 166 171 176	
atc cgg gag agc atc ctc atc aac aac ggc tcc cgg atc aaa ggc tgg	632
Ile Arg Glu Ser Ile Leu Ile Asn Asn Gly Ser Arg Ile Lys Gly Trp	
177 182 187 192	
tgg gtg ttc cat cac tac gtg tcc acc ttc ctg tgc gga gtc atg ctg	680
Trp Val Phe His His Tyr Val Ser Thr Phe Leu Ser Gly Val Met Leu	
193 198 203 208	
acg tgg ccc gac ggt ctc atg tac cag aaa ttc cgg aac caa ttc ctc	728
Thr Trp Pro Asp Gly Leu Met Tyr Gln Lys Phe Arg Asn Gln Phe Leu	
209 214 219 224	
tcc ttt tcc atg tac cag agc ttc gtg cag ttt ctc cag tac tac tac	776
Ser Phe Ser Met Tyr Gln Ser Phe Val Gln Phe Leu Gln Tyr Tyr Tyr	
225 230 235 240	
cag agc ggc tgc ctc tac cgc ctg cgg gcg ctg ggc gag cgg cac acc	824
Gln Ser Gly Cys Leu Tyr Arg Leu Arg Ala Leu Gly Glu Arg His Thr	
241 246 251 256	
atg gac ctc act gtg gag ggc ttc cag tcc tgg atg tgg cgg ggc ctc	872
Met Asp Leu Thr Val Glu Gly Phe Gln Ser Trp Met Trp Arg Gly Leu	
257 262 267 272	
acc ttc ctg ctg cct ttt ctt ttc ttt gga cac ttc tgg cag ctt ttt	920
Thr Phe Leu Leu Pro Phe Leu Phe Phe Gly His Phe Trp Gln Leu Phe	
273 278 283 288	
aac gcg ctg acg ttg ttc aac ctg gcc cag gac cct cag tgc aag gag	968
Asn Ala Leu Thr Leu Phe Asn Leu Ala Gln Asp Pro Gln Cys Lys Glu	
289 294 299 304	
tgg cag gtg ctt atg tgc ggc ttt ccc ttc ctc ctc ctt ttc ctc ggc	1016
Trp Gln Val Leu Met Cys Gly Phe Pro Phe Leu Leu Leu Phe Leu Gly	
305 310 315 320	
aat ttc ttc acc acc ctg agg gtt gtg cac cag ctc cat cac gcg gca	1064
Asn Phe Phe Thr Thr Leu Arg Val Val His Gln Leu His His Ala Ala	
321 326 331 336	
gaa gaa gcg gct cca gga gct ggg cct tcc cct gaa gaa atg caa acc	1112
Glu Glu Ala Ala Pro Gly Ala Gly Pro Ser Pro Glu Glu Met Gln Thr	
337 342 347 352	
ctc cct ccc agc aga ggc cga ggg ggc cgc aca gga gct gga gaa cca	1160
Leu Pro Pro Ser Arg Gly Arg Gly Gly Arg Thr Gly Ala Gly Glu Pro	
353 358 363 368	



gat gaa aga gcg cca agg cct ctt ctt tga c atggaggcct atttgccctaa 1211  
 Asp Glu Arg Ala Pro Arg Pro Leu Leu \*  
 369 374

gaagaatgga ttgtacctga gcctgggtct ggggaacgct aacgtcacgc tcctgagcaa 1271

gcaggctaag ttgacctaca aggacgagta tgagaagttc aagctctacc tcaccatcat 1331

cctcatcctc atctccttca cttgcgcgtt cctgctcaac tccagggtga cagatgctgc 1391

cttcaacttc ctgctggtct ggtactactg caccctgacc atccgggaga gcatcctcat 1451

caacaacggc tcccgggtggg cagggcgggc cctgagggag gggagcatgg aatgggggtgc 1511

caggaccctc cgggaagcag gaacaggcgc tgggggtgat ggtggctctc tgctccagga 1571

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accagagctt cgtcgagttt ctccagtact actaccagag cggctgcctc taccgcctgc 1751

ggcgctgggc gagcggcaca ccatggacct cactgtggag ggcttccagt cctggatgtg 1811

gcgggggcctc accttctgc tgccttttct tttctttgga cacttctggc agctttttaa 1871

cgcgctgacg ttgttcaacc tggcccagga ccctcagtgc aaggagtggc aggtgcttat 1931

gtgcggcttt ccttctcttc tcttttctc cggcaatttc ttcaccacc tgtgtgttgt 1991

gcaccacaag tttcacagtc agcggcacgg gagcaagaag gattgaggct gggccttccc 2051

ctgccggccc agaggggctt ctgtcctgtg tgttgtggga ggggatggga ggcgccccctc 2111

gagtgtgcgt gtatcagggg gtctcttcta ttctcccttg ggttttatgg gcgctgtggg 2171

ccctgaagga agacctggcc cagtgcctc aataaagaga ggccagagg tggaaaaaa 2231

aaaaa 2236

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<220>  
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 <222> (214) .. (798)

<400> 353

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cctctaagga ggagcactga ctgaagacag aaaaattgat gaactgaaga agacatgggtc 120

cattatgcct tacaaactta cacagtgcct tgggaattcc aaagtactca gtggagagag	180
gtgttttcagg agccgtagag ccagatcgtc atc atg tct gca ttg tgg ctg ctg	234
Met Ser Ala Leu Trp Leu Leu	
1 5	
ctg ggc ctc ctt gcc ctg atg gac ttg tct gaa agc agc aac tgg gga	282
Leu Gly Leu Leu Ala Leu Met Asp Leu Ser Glu Ser Ser Asn Trp Gly	
8 13 18 23	
tgc tat gga aac atc caa agc ctg gac acc cct gga gca tct tgt ggg	330
Cys Tyr Gly Asn Ile Gln Ser Leu Asp Thr Pro Gly Ala Ser Cys Gly	
24 29 34 39	
att gga aga cgt cac ggc ctg aac tac tgt gga gtt cgt gct tct gaa	378
Ile Gly Arg Arg His Gly Leu Asn Tyr Cys Gly Val Arg Ala Ser Glu	
40 45 50 55	
agg ctg gct gaa ata gac atg cca tac ctc ctg aaa tat caa ccc atg	426
Arg Leu Ala Glu Ile Asp Met Pro Tyr Leu Leu Lys Tyr Gln Pro Met	
56 61 66 71	
atg caa acc att ggc caa aag tac tgc atg gat cct gcc gtg atc gct	474
Met Gln Thr Ile Gly Gln Lys Tyr Cys Met Asp Pro Ala Val Ile Ala	
72 77 82 87	
ggg gtc ttg tcc agg aag tct ccc ggt gac aaa att ctg gtc aac atg	522
Gly Val Leu Ser Arg Lys Ser Pro Gly Asp Lys Ile Leu Val Asn Met	
88 93 98 103	
ggc gat agg act agc atg gtg cag gac cct ggc tct caa gct ccc aca	570
Gly Asp Arg Thr Ser Met Val Gln Asp Pro Gly Ser Gln Ala Pro Thr	
104 109 114 119	
tcc tgg att agt gag tct cag gtt tcc cag aca act gaa gtt ctg act	618
Ser Trp Ile Ser Glu Ser Gln Val Ser Gln Thr Thr Glu Val Leu Thr	
120 125 130 135	
act aga atc aaa gaa atc cag agg agg ttt cca acc tgg acc cct gac	666
Thr Arg Ile Lys Glu Ile Gln Arg Arg Phe Pro Thr Trp Thr Pro Asp	
136 141 146 151	
cag tac ctg aga ggt gga ctc tgt gcc tac agt ggg ggt gct ggc tat	714
Gln Tyr Leu Arg Gly Gly Leu Cys Ala Tyr Ser Gly Gly Ala Gly Tyr	
152 157 162 167	
gtc cga agc agc cag gac ctg agc tgt gac ttc tgc aat gat gtc ctt	762
Val Arg Ser Ser Gln Asp Leu Ser Cys Asp Phe Cys Asn Asp Val Leu	
168 173 178 183	
gca cga gcc aag tac ctc aag aga cat ggc ttc taa catc tcagatgaaa	812
Ala Arg Ala Lys Tyr Leu Lys Arg His Gly Phe *	
184 189 194	
cccaagacca tgatcacata tgcagcctca aatgttacac agataaaaact agccaagggc	872
acctgtaact gggaatctga gtttgaccta aaagtcatta aaataacatg aatcacatta	932

aaggaagaat tttgacctgc aaaaaaaaaa a

963

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<212> DNA  
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Met Lys Ile Lys Pro Gly Phe Met  
1 5

ggg aag gcc act cca ccc tat gac gtc cag ttt cat atg gag gcc tca 99  
Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Phe His Met Glu Ala Ser  
9 14 19 24

gtt gaa aac tgc att att gtg agc atg aac acc gct gac cct ggc agc 147  
Val Glu Asn Cys Ile Ile Val Ser Met Asn Thr Ala Asp Pro Gly Ser  
25 30 35 40

cag ggc atc aca cac agc ctc ttg cta cag gtc att gat gac aag ggc 195  
Gln Gly Ile Thr His Ser Leu Leu Leu Gln Val Ile Asp Asp Lys Gly  
41 46 51 56

agc atc ctg cca cct aac aca gaa gga aac att ggc atc aga atc aaa 243  
Ser Ile Leu Pro Pro Asn Thr Glu Gly Asn Ile Gly Ile Arg Ile Lys  
57 62 67 72

cct gtc agg cct gtg agc ctc ttc atg tgc tat gag ggt gac cca gag 291  
Pro Val Arg Pro Val Ser Leu Phe Met Cys Tyr Glu Gly Asp Pro Glu  
73 78 83 88

aag aca gct aaa gtg gaa tgt ggg gac ttc tac aac act ggg gac aga 339  
Lys Thr Ala Lys Val Glu Cys Gly Asp Phe Tyr Asn Thr Gly Asp Arg  
89 94 99 104

gga aag atg gat gaa gag ggc tac att tgt ttc ctg ggg agg agt gat 387  
Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys Phe Leu Gly Arg Ser Asp  
105 110 115 120

gac atc att aat gcc tct ggg tat cgc atc ggg cct gca gag gtt gaa 435  
Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile Gly Pro Ala Glu Val Glu  
121 126 131 136

agc gct ttg gtg gag cac cca gcg gtg gcg gag tca gcc gtg gtg ggc 483  
Ser Ala Leu Val Glu His Pro Ala Val Ala Glu Ser Ala Val Val Gly  
137 142 147 152

agc cca gac ccg att cga ggg gag gtg gtg aag gcc ttt att gtc ctg 531

Ser	Pro	Asp	Pro	Ile	Arg	Gly	Glu	Val	Val	Lys	Ala	Phe	Ile	Val	Leu	
153					158					163					168	
acc	cca	cag	ttc	ctg	tcc	cat	gac	aag	gat	cag	ctg	acc	aag	gaa	ctg	579
Thr	Pro	Gln	Phe	Leu	Ser	His	Asp	Lys	Asp	Gln	Leu	Thr	Lys	Glu	Leu	
169					174					179					184	
cag	cag	cat	gtc	aag	tca	gtg	aca	gcc	cca	tac	aag	tac	cca	agg	aag	627
Gln	Gln	His	Val	Lys	Ser	Val	Thr	Ala	Pro	Tyr	Lys	Tyr	Pro	Arg	Lys	
185					190					195					200	
gtg	gag	ttt	gtc	tca	gag	ctg	cca	aaa	acc	atc	act	ggc	aag	att	gaa	675
Val	Glu	Phe	Val	Ser	Glu	Leu	Pro	Lys	Thr	Ile	Thr	Gly	Lys	Ile	Glu	
201					206					211					216	
cgg	aag	gaa	ctt	cgg	aaa	aag	gag	act	ggt	cag	atg	taa	tcggcagtg			724
Arg	Lys	Glu	Leu	Arg	Lys	Lys	Glu	Thr	Gly	Gln	Met	*				
217					222					227						
actcagaacg	cactgcacac	ctgaggc	caaaa	tccttg	gcc	ctttagtctc	cccactatgg									784
tgaggacgag	ggtggggcat	tgagagtgtt	gatttgggaa	agtatcagga	gtgccatgat											844
tccaatgttt	tccttctttt	aaattaaatt	cagttgctct	gcttctcca	agtcctctgt											904
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aaaaaaaaa	a															975
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gttgcccaag	gatcaggagg	agtggaaaag	acggacgggc	cttctgctct	acgagaacta											180
tgggcagtcg	gaaacgggac	taatttgtgc	cacctactgg	gga	atg aag atc aag											235
					Met Lys Ile Lys											
					1											
ccg ggt ttc atg ggg aag gcc act cca ccc tat gac gtc cag gtc att																283
Pro Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Val Ile																
5				10					15						20	
gat gac aag ggc agc atc ctg cca cct aac aca gaa gga aac att ggc																331

Asp	Asp	Lys	Gly	Ser	Ile	Leu	Pro	Pro	Asn	Thr	Glu	Gly	Asn	Ile	Gly		
21					26					31					36		
atc	aga	atc	aaa	cct	gtc	agg	cct	gtg	agc	ctc	ttc	atg	tgc	tat	gag		379
Ile	Arg	Ile	Lys	Pro	Val	Arg	Pro	Val	Ser	Leu	Phe	Met	Cys	Tyr	Glu		
37					42					47					52		
ggt	gac	cca	gag	aag	aca	gct	aaa	gtg	gaa	tgt	ggg	gac	ttc	tac	aac		427
Gly	Asp	Pro	Glu	Lys	Thr	Ala	Lys	Val	Glu	Cys	Gly	Asp	Phe	Tyr	Asn		
53					58					63					68		
act	ggg	gac	aga	gga	aag	atg	gat	gaa	gag	ggc	tac	att	tgt	ttc	ctg		475
Thr	Gly	Asp	Arg	Gly	Lys	Met	Asp	Glu	Glu	Gly	Tyr	Ile	Cys	Phe	Leu		
69					74					79					84		
ggg	agg	agt	gat	gac	atc	att	aat	gcc	tct	ggg	tat	cgc	atc	ggg	cct		523
Gly	Arg	Ser	Asp	Asp	Ile	Ile	Asn	Ala	Ser	Gly	Tyr	Arg	Ile	Gly	Pro		
85					90					95					100		
gca	gag	gtt	gaa	agc	gct	ttg	gtg	gag	cac	cca	gcg	gtg	gcg	gag	tca		571
Ala	Glu	Val	Glu	Ser	Ala	Leu	Val	Glu	His	Pro	Ala	Val	Ala	Glu	Ser		
101					106					111					116		
gcc	gtg	gtg	ggc	agc	cca	gac	ccg	att	cga	ggg	gag	gtg	gtg	aag	gcc		619
Ala	Val	Val	Gly	Ser	Pro	Asp	Pro	Ile	Arg	Gly	Glu	Val	Val	Lys	Ala		
117					122					127					132		
ttt	att	gtc	ctg	acc	cca	cag	ttc	ctg	tcc	cat	gac	aag	gat	cag	ctg		667
Phe	Ile	Val	Leu	Thr	Pro	Gln	Phe	Leu	Ser	His	Asp	Lys	Asp	Gln	Leu		
133					138					143					148		
acc	aag	gaa	ctg	cag	cag	cat	gtc	aag	tca	gtg	aca	gcc	cca	tac	aag		715
Thr	Lys	Glu	Leu	Gln	Gln	His	Val	Lys	Ser	Val	Thr	Ala	Pro	Tyr	Lys		
149					154					159					164		
tac	cca	agg	aag	gtg	gag	ttt	gtc	tca	gag	ctg	cca	aaa	acc	atc	act		763
Tyr	Pro	Arg	Lys	Val	Glu	Phe	Val	Ser	Glu	Leu	Pro	Lys	Thr	Ile	Thr		
165					170					175					180		
ggc	aag	att	gaa	cgg	aag	gaa	ctt	cgg	aaa	aag	gag	act	ggt	cag	atg		811
Gly	Lys	Ile	Glu	Arg	Lys	Glu	Leu	Arg	Lys	Lys	Glu	Thr	Gly	Gln	Met		
181					186					191					196		
taa	tcgg	cagtgaactc	agaacgcact	gcacacctga	ggcaaatccc	tggtccacttt											868
*																	
197																	
agtctcccca	ctatggtgag	gacgaggggtg	gggcattgag	agtggttgatt	tgggaaaagta												928
tcaggagtgc	catgattcca	atgttttcct	tcttttaa	taaattcagt	tgctctgctt												988
cctccaagtc	ctctgtatct	ttagaatttc	ccaggtgagc	actcataacg	caagtaataa												1048
aatactgata	tcaacaaaaa	aaaaaaa															1075

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 <212> DNA  
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<220>  
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 <222> (104)..(2212)

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 Met Val Ala His  
 1  
 ata aac aac agc cgg ctc aag gcc aag ggc gtg ggc cag cac gac aac 163  
 Ile Asn Asn Ser Arg Leu Lys Ala Lys Gly Val Gly Gln His Asp Asn  
 5 10 15 20  
 gcc cag aac ttt ggt aac cag agc ttt gag gag ctg cga gca gcc tgt 211  
 Ala Gln Asn Phe Gly Asn Gln Ser Phe Glu Glu Leu Arg Ala Ala Cys  
 21 26 31 36  
 cta aga aag ggg gag ctc ttc gag gac ccc tta ttc cct gct gaa ccc 259  
 Leu Arg Lys Gly Glu Leu Phe Glu Asp Pro Leu Phe Pro Ala Glu Pro  
 37 42 47 52  
 agc tca ctg ggc ttc aag gac ctg ggc ccc aac tcc aaa aat gtg cag 307  
 Ser Ser Leu Gly Phe Lys Asp Leu Gly Pro Asn Ser Lys Asn Val Gln  
 53 58 63 68  
 aac atc tcc tgg cag cgg ccc aag gat atc ata aac aac cct cta ttc 355  
 Asn Ile Ser Trp Gln Arg Pro Lys Asp Ile Ile Asn Asn Pro Leu Phe  
 69 74 79 84  
 atc atg gat ggg att tct cca aca gac atc tgc cag ggg atc ctc ggg 403  
 Ile Met Asp Gly Ile Ser Pro Thr Asp Ile Cys Gln Gly Ile Leu Gly  
 85 90 95 100  
 gac tgc tgg ctg ctg gct gcc atc ggc tcc ctt acc acc tgc ccc aaa 451  
 Asp Cys Trp Leu Leu Ala Ala Ile Gly Ser Leu Thr Thr Cys Pro Lys  
 101 106 111 116  
 ctg cta tac cgc gtg gtg ccc aga gga cag agc ttc aag aaa aac tat 499  
 Leu Leu Tyr Arg Val Val Pro Arg Gly Gln Ser Phe Lys Lys Asn Tyr  
 117 122 127 132  
 gct ggc atc ttc cat ttt cag att tgg cag ttt gga cag tgg gtg aac 547  
 Ala Gly Ile Phe His Phe Gln Ile Trp Gln Phe Gly Gln Trp Val Asn  
 133 138 143 148  
 gtg gtg gta gat gac cgg ctg ccc aca aag aat gac aag ctg gtg ttt 595  
 Val Val Val Asp Asp Arg Leu Pro Thr Lys Asn Asp Lys Leu Val Phe  
 149 154 159 164

gtg cac tca acc gaa cgc agt gag ttc tgg agt gcc ctg ctg gag aag	643
Val His Ser Thr Glu Arg Ser Glu Phe Trp Ser Ala Leu Leu Glu Lys	
165 170 175 180	
gcg tat gcc aag ctg agt ggg tcc tat gaa gca ttg tca ggg ggc agt	691
Ala Tyr Ala Lys Leu Ser Gly Ser Tyr Glu Ala Leu Ser Gly Gly Ser	
181 186 191 196	
acc atg gag ggc ctt gag gac ttc aca gga ggc gtg gcc cag agc ttc	739
Thr Met Glu Gly Leu Glu Asp Phe Thr Gly Gly Val Ala Gln Ser Phe	
197 202 207 212	
caa ctc cag agg ccc cct cag aac ctg ctc agg ctc ctt agg aag gcc	787
Gln Leu Gln Arg Pro Pro Gln Asn Leu Leu Arg Leu Leu Arg Lys Ala	
213 218 223 228	
gtg gag cga tcc tcc ctc atg ggt tgc tcc att gaa gtc acc agt gat	835
Val Glu Arg Ser Ser Leu Met Gly Cys Ser Ile Glu Val Thr Ser Asp	
229 234 239 244	
agt gaa ctg gaa tcc atg act gac aag atg ctg gtg aga ggg cac gct	883
Ser Glu Leu Glu Ser Met Thr Asp Lys Met Leu Val Arg Gly His Ala	
245 250 255 260	
tac tct gtg act ggc ctt cag gat gtc cac tac aga ggc aaa atg gaa	931
Tyr Ser Val Thr Gly Leu Gln Asp Val His Tyr Arg Gly Lys Met Glu	
261 266 271 276	
aca ctg att cgg gtc cgg aat ccc tgg ggc cgg att gag tgg aat gga	979
Thr Leu Ile Arg Val Arg Asn Pro Trp Gly Arg Ile Glu Trp Asn Gly	
277 282 287 292	
gct tgg agt gac agt gcc agg gag tgg gaa gag gtg gcc tca gac atc	1027
Ala Trp Ser Asp Ser Ala Arg Glu Trp Glu Glu Val Ala Ser Asp Ile	
293 298 303 308	
cag atg cag ctg ctg cac aag acg gag gac ggg gag ttc tgg atg tcc	1075
Gln Met Gln Leu Leu His Lys Thr Glu Asp Gly Glu Phe Trp Met Ser	
309 314 319 324	
tac caa gat ttc ctg aac aac ttc acg ctc ctg gag atc tgc aac ctc	1123
Tyr Gln Asp Phe Leu Asn Asn Phe Thr Leu Leu Glu Ile Cys Asn Leu	
325 330 335 340	
acg cct gat aca ctc tct ggg gac tac aag agc tac tgg cac acc acc	1171
Thr Pro Asp Thr Leu Ser Gly Asp Tyr Lys Ser Tyr Trp His Thr Thr	
341 346 351 356	
ttc tac gag ggc agc tgg cgc aga ggc agc tcc gca ggg ggc tgc agg	1219
Phe Tyr Glu Gly Ser Trp Arg Arg Gly Ser Ser Ala Gly Gly Cys Arg	
357 362 367 372	
aac cac cct ggc acg ttc tgg acc aac ccc cag ttt aag atc tct ctt	1267
Asn His Pro Gly Thr Phe Trp Thr Asn Pro Gln Phe Lys Ile Ser Leu	
373 378 383 388	
cct gag ggg gat gac cca gag gat gac gca gag ggc aat gtt gtg gtc	1315

Pro Glu Gly Asp Asp	Pro Glu Asp Asp Ala	Glu Gly Asn Val Val Val	
389	394	399	404
tgc acc tgc ctg gtg	gcc cta atg cag aag	aac tgg cgg cat gca cgg	1363
Cys Thr Cys Leu Val	Ala Leu Met Gln Lys	Asn Trp Arg His Ala Arg	
405	410	415	420
cag cag gga gcc cag	ctg cag acc att ggc	ttt gtc ctc tac gcg gtc	1411
Gln Gln Gly Ala Gln	Leu Gln Thr Ile Gly	Phe Val Leu Tyr Ala Val	
421	426	431	436
cca aaa gag ttt cag	aac att cag gat gtc	cac ttg aag aag gaa ttc	1459
Pro Lys Glu Phe Gln	Asn Ile Gln Asp Val	His Leu Lys Lys Glu Phe	
437	442	447	452
ttc acg aag tat cag	gac cac ggc ttc tca	gag atc ttc acc aac tca	1507
Phe Thr Lys Tyr Gln	Asp His Gly Phe Ser	Glu Ile Phe Thr Asn Ser	
453	458	463	468
cgg gag gtg agc agc	caa ctc cgg ctg cct	ccg ggg gaa tat atc att	1555
Arg Glu Val Ser Ser	Gln Leu Arg Leu Pro	Pro Gly Glu Tyr Ile Ile	
469	474	479	484
att ccc tcc acc ttt	gag cca cac aga gat	gct gac ttc ctg ctt cgg	1603
Ile Pro Ser Thr Phe	Glu Pro His Arg Asp	Ala Asp Phe Leu Leu Arg	
485	490	495	500
gtc ttc acc gag aag	cac agc gag tca tgg	gaa ttg gat gaa gtc aac	1651
Val Phe Thr Glu Lys	His Ser Glu Ser Trp	Glu Leu Asp Glu Val Asn	
501	506	511	516
tat gct gag caa ctc	caa gag gaa aag gtc	tct gag gat gac atg gac	1699
Tyr Ala Glu Gln Leu	Gln Glu Glu Lys Val	Ser Glu Asp Asp Met Asp	
517	522	527	532
cag gac ttc cta cat	ttg ttt aag ata gtg	gca gga gag ggc aag gag	1747
Gln Asp Phe Leu His	Leu Phe Lys Ile Val	Ala Gly Glu Gly Lys Glu	
533	538	543	548
ata ggg gtg tat gag	ctc cag agg ctg ctc	aac agg atg gcc atc aaa	1795
Ile Gly Val Tyr Glu	Leu Gln Arg Leu Leu	Asn Arg Met Ala Ile Lys	
549	554	559	564
ttc aaa agc ttc aag	acc aag ggc ttt ggc	ctg gat gct tgc cgc tgc	1843
Phe Lys Ser Phe Lys	Thr Lys Gly Phe Gly	Leu Asp Ala Cys Arg Cys	
565	570	575	580
atg atc aac ctc atg	gat aaa gat ggc tct	ggc aag ctg ggg ctt cta	1891
Met Ile Asn Leu Met	Asp Lys Asp Gly Ser	Gly Lys Leu Gly Leu Leu	
581	586	591	596
gag ttc aag atc ctg	tgg aaa aaa ctc aag	aaa tgg atg gac atc ttc	1939
Glu Phe Lys Ile Leu	Trp Lys Lys Leu Lys	Lys Trp Met Asp Ile Phe	
597	602	607	612
aga gag tgt gac cag	gac cat tca ggc acc	ttg aac tcc tat gag atg	1987
Arg Glu Cys Asp Gln	Asp His Ser Gly Thr	Leu Asn Ser Tyr Glu Met	



613	618	623	628	
cgc ctg gtt att gag	aaa gca ggc atc aag	ctg aac aac aag gta atg		2035
Arg Leu Val Ile Glu	Lys Ala Gly Ile Lys	Leu Asn Asn Lys Val Met		
629	634	639	644	
cag gtc ctg gtg gcc agg tat gca gat gat	gac ctg atc ata gac ttt		2083	
Gln Val Leu Val Ala Arg Tyr Ala Asp Asp	Asp Leu Ile Ile Asp Phe			
645	650	655	660	
gac agc ttc atc agc tgt ttc ctg agg cta aag	acc atg ttc aca ttc		2131	
Asp Ser Phe Ile Ser Cys Phe Leu Arg Leu Lys	Thr Met Phe Thr Phe			
661	666	671	676	
ttt cta acc atg gac ccc aag aat act ggc cat att tgc ttg agc ctg			2179	
Phe Leu Thr Met Asp Pro Lys Asn Thr Gly His Ile Cys Leu Ser Leu				
677	682	687	692	
gaa cag tgg ctg cag atg acc atg tgg gga tag aggcgctg taggagcctg			2230	
Glu Gln Trp Leu Gln Met Thr Met Trp Gly *				
693	698	703		
gtcatctcta ccagcagcag cagcagcgag gttctagccc aggagggtgg ggtgcttctt				2290
gtagccctca gctctccagt ctctgctgat gaaatgggat ccagggtgg				2338
<210> 357				
<211> 1541				
<212> DNA				
<213> Homo sapiens				
<220>				
<221> CDS				
<222> (81) .. (173)				
<400> 357				
cccctctgtg cactcattac ctgcttctctg agctccccga gaagtcattcc aggacctccc				60
cgagaagccg tccaggaaac	atg ctc tca ggg gac ccc cat ctg cct cag			110
	Met Leu Ser Gly Asp Pro His Leu Pro Gln			
	1	5		
cct ctt tgt cac tgc ctg gac cat tgt ccc tgc tgt ttc tca ggc acc				158
Pro Leu Cys His Cys Leu Asp His Cys Pro Cys Cys Phe Ser Gly Thr				
11	16	21	26	
acc agg acc agc tga tcattccagc ccacagcaat ggagccacat gactcctccc				213
Thr Arg Thr Ser *				
27				
acatggactc tgagttccga tacactctct tcccgattgt ttacagcatc atctttgtgc				273
tcgggggtcat tgctaattggc tacgtgctgt gggctctttgc ccgcctgtac ccttgcaaga				333

aattcaatga gataaagatc ttcattggtga acctcaccat ggccggacatg ctcttcttga 393  
tcaccttgcc acttttgatt gtctactacc aaaaccaggg caactggata ctccccaat 453  
tcctgtgcaa cgtggctggc tgccttttct tcatcaacac ctactgctct gtggccttcc 513  
tggggggtcat cacttataac cgttccagg cagtaactcg gcccatcaag actgctcagg 573  
ccaacacccg caagcgtggc atctctttgt ccttgggtcat ctgggtggcc attgtgggag 633  
ctgcaccta ctctctcatc ctggactcca ccaacacagt gcccgacagt gctgggtcag 693  
gcaacgtcac tcgctgcttt gagcattacg agaagggcag cgtgccagtc ctcatcatcc 753  
acatcttcat cgtgttcagc ttcttctggt tcttctcat catctcttc tgcaacctgg 813  
tcatcatccg taccttgctc atgcagccgg tgcagcagca gcgcaacgct gaagtcaagc 873  
gccgggcgct gtggatggtg tgcacggtct tggcgggtgt catcatctgc ttctgtcccc 933  
accagtggt gcagctgccc tggacccttg ctgagctggg ctccaggac agcaaattcc 993  
accaggccat taatgatgca catcaggtca cctctgct ccttagcacc aactgtgtct 1053  
tagaccctgt tatctactgt ttctcacca aaaagttccg caagcacctc accgaaaagt 1113  
tctacagcat gcgcagtagc cggaattgct cccgggccac cacggatacg gtcactgaag 1173  
tggttgtgcc attcaaccag atccctggca attccctcaa aaattagtcc ctgcttccat 1233  
gcctgaagtc ttctcctcca tgaacatcat ggactgagct gggggaagaa gggatatcta 1293  
ctgtgggtct gggcaccacc tctgtgggct ctggtgggcc attagatttg gaggtacct 1353  
cacctgggca gggatgatgg cagagccagg ctgttggaat atccagaact caaatgagcc 1413  
ccttcatccg cctgtgggag catactacag taactgtgac tgatgacttt atcctgagtc 1473  
ccttaatctt atggggccgg aaggaatgtc agggccaggc gcagaccttg ggggaagact 1533  
ttaaacca 1541

<210> 358  
<211> 523  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (71) .. (448)

<400> 358  
gacacgcgtt cgaacctatg caaatgccca ctccctgcca acctacgtga agagcccagc 60

cccctgccag	atg acc tac atc aaa agt cca gct ccc tgc cag acc cag	109
	Met Thr Tyr Ile Lys Ser Pro Ala Pro Cys Gln Thr Gln	
	1 5 10	
acg tgc tat gtc cag ggt gct tct cct tgc cag agc tat tat gtt caa	157	
Thr Cys Tyr Val Gln Gly Ala Ser Pro Cys Gln Ser Tyr Tyr Val Gln		
14 19 24 29		
gct cct gca agt ggc tca acc tcc cag tac tgt gtc act gac cca tgc	205	
Ala Pro Ala Ser Gly Ser Thr Ser Gln Tyr Cys Val Thr Asp Pro Cys		
30 35 40 45		
tct gct ccc tgt tcc acc agc tac tgc tgt ctg gct ccc cgg acc ttc	253	
Ser Ala Pro Cys Ser Thr Ser Tyr Cys Cys Leu Ala Pro Arg Thr Phe		
46 51 56 61		
ggg gtg agt ccc ctg aga cgc tgg att cag cgg ccc cag aac tgc aac	301	
Gly Val Ser Pro Leu Arg Arg Trp Ile Gln Arg Pro Gln Asn Cys Asn		
62 67 72 77		
aca gga tca tct ggc tgc tgt gag aat tcg gga agc tct ggg tgc tgt	349	
Thr Gly Ser Ser Gly Cys Cys Glu Asn Ser Gly Ser Ser Gly Cys Cys		
78 83 88 93		
ggt tct ggg ggc tgt ggc tgc agc tgt gga tgt ggc agc tct ggg tgc	397	
Gly Ser Gly Gly Cys Gly Cys Ser Cys Gly Cys Gly Ser Ser Gly Cys		
94 99 104 109		
tgc tgt ttg gga att atc ccc atg aag tcc cga agt cct gcg ttg ctg	445	
Cys Cys Leu Gly Ile Ile Pro Met Lys Ser Arg Ser Pro Ala Leu Leu		
110 115 120 125		
tga ccat gaggatgact gctgctgcta aacatacgcac agctcaactc cagaatgcac	502	
*		
126		
tgccccgcta cccctctgga a	523	

<210> 359  
 <211> 1783  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (133)..(1548)

<220>  
 <221> misc\_feature  
 <222> (1)...(1783)  
 <223> n = a,t,c or g

<400> 359	
gaggtcanag cactggagcc aacaccgccc caggatgggg tataaaaggg ttgggaggag	60



205	210	215	220	
aag gcc gac ctg gag gcc cag cag gag tcc ctg aag gag gag cag ctc				840
Lys Ala Asp Leu Glu Ala Gln Gln Glu Ser Leu Lys Glu Glu Gln Leu				
221	226	231	236	
tcc ctc aag agc aac cac gag cag gaa gta aag att ctg agg agt cag				888
Ser Leu Lys Ser Asn His Glu Gln Glu Val Lys Ile Leu Arg Ser Gln				
237	242	247	252	
ctg ggg gag aag ttc cgg atc gag ctg gac att gag ccc acc att gac				936
Leu Gly Glu Lys Phe Arg Ile Glu Leu Asp Ile Glu Pro Thr Ile Asp				
253	258	263	268	
ctg aac agg gtg ttg ggg gag atg cgg gct cag tac gag gcc atg gtg				984
Leu Asn Arg Val Leu Gly Glu Met Arg Ala Gln Tyr Glu Ala Met Val				
269	274	279	284	
gag acc aac cac cag gat gtg gaa cag tgg ttc caa gcc cag tct gaa				1032
Glu Thr Asn His Gln Asp Val Glu Gln Trp Phe Gln Ala Gln Ser Glu				
285	290	295	300	
ggc atc agc ctg cag gcc atg tcc tgc tcc gag gag ctg cag tgc tgc				1080
Gly Ile Ser Leu Gln Ala Met Ser Cys Ser Glu Glu Leu Gln Cys Cys				
301	306	311	316	
cag tgc gag atc ctg gag ctg aga tgc acg gtg aat gcc ctg gag gtg				1128
Gln Ser Glu Ile Leu Glu Leu Arg Cys Thr Val Asn Ala Leu Glu Val				
317	322	327	332	
gag cgc caa gcc cag cac acc ttg aag gac tgt ctg cag aac tcc ctg				1176
Glu Arg Gln Ala Gln His Thr Leu Lys Asp Cys Leu Gln Asn Ser Leu				
333	338	343	348	
tgt gaa gcg gag gac cgc tac ggc aca gag ctg gcc cag atg cag agc				1224
Cys Glu Ala Glu Asp Arg Tyr Gly Thr Glu Leu Ala Gln Met Gln Ser				
349	354	359	364	
ctc att agc aac ttg gaa gag cag ttg tct gag atc cgg gcc gac ctg				1272
Leu Ile Ser Asn Leu Glu Glu Gln Leu Ser Glu Ile Arg Ala Asp Leu				
365	370	375	380	
gag cgg cag aac cag gag tac cag gtg ctg ctg gac gtg aag gcc cgg				1320
Glu Arg Gln Asn Gln Glu Tyr Gln Val Leu Leu Asp Val Lys Ala Arg				
381	386	391	396	
ttg gag aac gag att gcc aca tac cgg aac ctt act ccc ctg caa tcc				1368
Leu Glu Asn Glu Ile Ala Thr Tyr Arg Asn Leu Thr Pro Leu Gln Ser				
397	402	407	412	
ctg ttc cac gcc tgc ctc ctg tac ttc ttg tcc aag ctg tgg ccc tgt				1416
Leu Phe His Ala Cys Leu Leu Tyr Phe Leu Ser Lys Leu Trp Pro Cys				
413	418	423	428	
cac cgg tgg gtc tcc ctc tgg cca tgg agc cag cat ggg gag atg att				1464
His Arg Trp Val Ser Leu Trp Pro Trp Ser Gln His Gly Glu Met Ile				
429	434	439	444	

ctg aag gcc cga gtt agg aga ttg agg ctg gtt gca ctg ggg tca gga 1512  
 Leu Lys Ala Arg Val Arg Arg Leu Arg Leu Val Ala Leu Gly Ser Gly  
 445 450 455 460  
 gtg ccc tca cct tgc cca gtc ttc ctt caa gac tag actc actgaggcat 1562  
 Val Pro Ser Pro Cys Pro Val Phe Leu Gln Asp \*  
 461 466 471  
 tttccctaaa tcaaccggta gcagatactt ccaaggagtg gctccctgcc tatgcctcta 1622  
 agctgtatatt tttgttgttg ctaaaatgtt gtaattatct tccatgaaag caattatttt 1682  
 tctgtgtgtc tcttcttggg acttttagtt ctattccagt gtttcagaat ctccaaaaat 1742  
 gtaactgggt tccctgcatt aaatgggtcaa taaacctcct t 1783

<210> 360  
 <211> 422  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (47)..(403)

<220>  
 <221> misc\_feature  
 <222> (1)...(422)  
 <223> n = a,t,c or g

<400> 360  
 tgatctgctg cagtgcctga accagcttta ttcagcttct acagag atg tcc tgc 55  
 Met Ser Cys  
 1

cag cag agc cag cag cag tgc cag cct cct ccc aaa tgt acc cct aaa 103  
 Gln Gln Ser Gln Gln Gln Cys Gln Pro Pro Pro Lys Cys Thr Pro Lys  
 4 9 14 19

tgc cct ccc aag tgt act cct aag tgt cct ccc aag tgt ccc cca aaa 151  
 Cys Pro Pro Lys Cys Thr Pro Lys Cys Pro Pro Lys Cys Pro Pro Lys  
 20 25 30 35

tgc cct ccc cag tat tca gcc cca tgc cca cct cca gtc tct tcc tgc 199  
 Cys Pro Pro Gln Tyr Ser Ala Pro Cys Pro Pro Pro Val Ser Ser Cys  
 36 41 46 51

tgt ggt tcc agc tct ggg ggc tgc tgc agc tct gag ggt ggt ggc tgc 247  
 Cys Gly Ser Ser Ser Gly Gly Cys Cys Ser Ser Glu Gly Gly Gly Cys  
 52 57 62 67

tgc ctg agc cac cac agg ccc cgc cag tcc ctc cga cgc cga cct cag 295  
 Cys Leu Ser His His Arg Pro Arg Gln Ser Leu Arg Arg Arg Pro Gln

68	73	78	83	
agt tcc agc tgc tgt ggc agt ggc agt ggc cag cag tct ggg ggc tcc				343
Ser Ser Ser Cys Cys Gly Ser Gly Ser Gly Gln Gln Ser Gly Gly Ser				
84	89	94	99	
agc tgc tgc cac agc tct ggg ggc tct ggc tgc tgc cac agc tct gga				391
Ser Cys Cys His Ser Ser Gly Gly Ser Gly Cys Cys His Ser Ser Gly				
100	105	110	115	
ggc tgc tgc tga cctgggccat gaggagcan				422
Gly Cys Cys *				
116				

<210> 361  
 <211> 1304  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (181) .. (723)

<400> 361	
atttggccct cgaggccaag aattcggcac gagggcggcg cggacagcgt tcggggctgt	60
gtgcgggcgc ctctggcagg gattggggaa tttttctgta aacatttcta agggcaatac	120
agccaaaaat ggtggcttgc ttctgtttct ctttttttcc ccacacatag cagtaccaat	180
atg aag tgg gta cag ttt tca aac cta cac gtt gat gtt cca aag gat	228
Met Lys Trp Val Gln Phe Ser Asn Leu His Val Asp Val Pro Lys Asp	
1 5 10 15	
ttg acc aaa cct gtg gta aca atc tct gat gaa cca gac ata tta tat	276
Leu Thr Lys Pro Val Val Thr Ile Ser Asp Glu Pro Asp Ile Leu Tyr	
17 22 27 32	
aag cgc ctc tcg gtt ttg gtg aaa ggt cac gat aag gct gta ttg gac	324
Lys Arg Leu Ser Val Leu Val Lys Gly His Asp Lys Ala Val Leu Asp	
33 38 43 48	
agt tat gaa tat ttt gct gtg ctt gct gct aaa gaa ctt ggt atc tct	372
Ser Tyr Glu Tyr Phe Ala Val Leu Ala Ala Lys Glu Leu Gly Ile Ser	
49 54 59 64	
att aaa gta cat gaa cct cca agg aaa ata gag cga ttt act ctt ctc	420
Ile Lys Val His Glu Pro Pro Arg Lys Ile Glu Arg Phe Thr Leu Leu	
65 70 75 80	
caa tca gtg cat att tac aag aag cac aga gtt cag tat gaa atg aga	468
Gln Ser Val His Ile Tyr Lys Lys His Arg Val Gln Tyr Glu Met Arg	
81 86 91 96	

aca ctt tac aga tgt tta gag tta gaa cat cta act gga agc aca gca	516
Thr Leu Tyr Arg Cys Leu Glu Leu Glu His Leu Thr Gly Ser Thr Ala	
97 102 107 112	
gat gtc tac ttg gaa tat att cag cga aac tta cct gaa ggg gtt gcc	564
Asp Val Tyr Leu Glu Tyr Ile Gln Arg Asn Leu Pro Glu Gly Val Ala	
113 118 123 128	
atg gaa gta aca aag ttt tgt ttc ttt att ttt tta gac aca att aga	612
Met Glu Val Thr Lys Phe Cys Phe Phe Ile Phe Leu Asp Thr Ile Arg	
129 134 139 144	
aca gtt acc aga aca cat caa gga gcc aat ctg gga aac act atc aga	660
Thr Val Thr Arg Thr His Gln Gly Ala Asn Leu Gly Asn Thr Ile Arg	
145 150 155 160	
aga aaa aga aga aag caa gtc ata aag cct cag gga ggc cat ttt tgc	708
Arg Lys Arg Arg Lys Gln Val Ile Lys Pro Gln Gly Gly His Phe Cys	
161 166 171 176	
cta aat ttg aaa tga ggggtgggcca gatgagtatg ttttaagtgga gagtgccttc	763
Leu Asn Leu Lys *	
177	
agctgagatg atttgagtct gtcctaactg ctccattgag ttctcgtgcc ctcatcagct	823
gagggcaggg aatggaactt taatggaaga accactttta tctattcttt ttattcattg	883
tttcagttct gatttcagca aacatgagca aaccactttg actgaaagca gaaagagtga	943
aaattctatt ttgttacgct actggtgttc aattattagt ttgtaccatt ttttaatttat	1003
gtcagttgat gcatctgaaa ataagtgcct ggagtgttcg tacccttatt tttttttaag	1063
attcctagaa ggaatctttg gttaattcag attgagcagt taaagttttt gctatttacc	1123
tttgtgcagg ctggcatatg ctaatttggg ggtggttaacc aaccgatttt atctcatgta	1183
agcattacat tttgaagact gaatatactt cacagcagat caaacacatt tatggcatgc	1243
actgacctct tcttggagcc cagactttat agagttgcct accagggggtt actgtaatgg	1303
a	1304

<210> 362  
 <211> 414  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (53) .. (370)



<220>  
 <221> misc\_feature  
 <222> (1)...(414)  
 <223> n = a,t,c or g

<400> 362  
 ggacgtatct gttgctgcgt ctgaaccacac tgtttatcga aatcccacca ag atg 55  
 Met  
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tcc tgc cag cag aac caa cag cag tgc cag ccc cct ccc aag tgt cct 103  
 Ser Cys Gln Gln Asn Gln Gln Gln Cys Gln Pro Pro Pro Lys Cys Pro  
 2 7 12 17

atc ccc aag tat ccc cca aaa tgt ccc tca aag tgt gca tcc tca tgc 151  
 Ile Pro Lys Tyr Pro Pro Lys Cys Pro Ser Lys Cys Ala Ser Ser Cys  
 18 23 28 33

cca cct cca atc tct tcc tgc tgt ggc tcc agc tct ggg ggc tgc tgt 199  
 Pro Pro Pro Ile Ser Ser Cys Cys Gly Ser Ser Ser Gly Gly Cys Cys  
 34 39 44 49

agc tct ggg ggc tgt ggt tgc tgc agc tct gag gga ggt ggc tgc tgc 247  
 Ser Ser Gly Gly Cys Gly Cys Cys Ser Ser Glu Gly Gly Gly Cys Cys  
 50 55 60 65

ctg agc cac cac aga cac cat agg tcc cac tgc cac aga ccc aag agc 295  
 Leu Ser His His Arg His His Arg Ser His Cys His Arg Pro Lys Ser  
 66 71 76 81

tcc aat tgc tat ggc agt ggc agt ggc cag cag tct ggg ggt tct ggc 343  
 Ser Asn Cys Tyr Gly Ser Gly Ser Gly Gln Gln Ser Gly Gly Ser Gly  
 82 87 92 97

tgc tgc tct gga ggg ggc tgt tgc tga cctgg accaggagca gcaccaaagg 395  
 Cys Cys Ser Gly Gly Gly Cys Cys \*  
 98 103

aattagtggg cgaaggacn 414

<210> 363  
 <211> 2254  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (238)..(1278)

<400> 363  
 aattccgggt cgacctacgc gtccgaagct ataggctacc cattcagctc cctgtcaga 60  
 gactcaagct ttgagaaaagg ctagcaaaga gcaaggaaaag agagaaaaca acaaagtggc 120

gaggccctca	gagtgaagc	gtaaggttca	gtcagcctgc	tgcagctttg	cagacctcag	180
ctgggcatct	ccagactccc	ctgaaggaag	agccttcctc	acccaaaccc	acaaaag	237
atg ctg aaa aag cct ctc tca gct gtg acc tgg ctc tgc att ttc atc	285					
Met Leu Lys Lys Pro Leu Ser Ala Val Thr Trp Leu Cys Ile Phe Ile						
1 5 10 15						
gtg gcc ttt gtc agc cac cca gcg tgg ctg cag aag ctc tct aag cac	333					
Val Ala Phe Val Ser His Pro Ala Trp Leu Gln Lys Leu Ser Lys His						
17 22 27 32						
aag aca cca gca cag cca cag ctc aaa gcg gcc aac tgc tgt gag gag	381					
Lys Thr Pro Ala Gln Pro Gln Leu Lys Ala Ala Asn Cys Cys Glu Glu						
33 38 43 48						
gtg aag gag ctc aag gcc caa gtt gcc aac ctt agc agc ctg ctg agt	429					
Val Lys Glu Leu Lys Ala Gln Val Ala Asn Leu Ser Ser Leu Leu Ser						
49 54 59 64						
gaa ctg aac aag aag cag gag agg gac tgg gtc agc gtg gtc atg cag	477					
Glu Leu Asn Lys Lys Gln Glu Arg Asp Trp Val Ser Val Val Met Gln						
65 70 75 80						
gtg atg gag ctg gag agc aac agc aag cgc atg gag tcg cgg ctc aca	525					
Val Met Glu Leu Glu Ser Asn Ser Lys Arg Met Glu Ser Arg Leu Thr						
81 86 91 96						
gat gct gag agc aag tac tcc gag atg aac aac caa att gac atc atg	573					
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Tyr Lys Leu Pro Pro Asp Asp Phe Leu Gly Ser Pro Glu Leu Glu Val						
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Gln Gly Phe Gly Ser Ile Arg Gly Asp Phe Trp Leu Gly Asn Glu His						
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Ile His Arg Leu Ser Arg Gln Pro Thr Arg Leu Arg Val Glu Met Glu						

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Gly Asn Glu Leu Asn Ser Tyr Arg Leu Phe Leu Gly Asn Tyr Thr Gly				
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Asn Val Gly Asn Asp Ala Leu Gln Tyr His Asn Asn Thr Ala Phe Ser				
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Thr Lys Asp Lys Asp Asn Asp Asn Cys Leu Asp Lys Cys Ala Gln Leu				
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Arg Lys Gly Gly Tyr Trp Tyr Asn Cys Cys Thr Asp Ser Asn Leu Asn				
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Gly Val Tyr Tyr Arg Leu Gly Glu His Asn Lys His Leu Asp Gly Ile				
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Thr Trp Tyr Gly Trp His Gly Ser Thr Tyr Ser Leu Lys Arg Val Glu				
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 Gly Met Asn Asn Asn Met Ser Leu Gln Asp Ala Glu Trp Tyr Trp Gly  
 51 56 61 66

gat atc tcg agg gaa gaa gtg aat gaa aaa ctt cga gat aca gca gac 295  
 Asp Ile Ser Arg Glu Glu Val Asn Glu Lys Leu Arg Asp Thr Ala Asp  
 67 72 77 82

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Val Val Glu Leu Ile Asn His Tyr Arg Asn Glu Ser Leu Ala Gln Tyr	
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Lys Arg Met Asn Ser Ile Lys Pro Asp Leu Ile Gln Leu Arg Lys Thr	
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Arg Asp Gln Tyr Leu Met Trp Leu Thr Gln Lys Gly Val Arg Gln Lys	
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Glu Leu Gln Lys Trp Arg Glu Ile Ile Lys Ser Ser Val Met Leu Leu	
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Gln Ser Gly Arg Ser Gly Gly Lys Asn Ser Lys Lys Ser Gln Ser Trp	
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Tyr Asn Val Leu Ser Pro Thr Tyr Lys Gln Arg Asn Glu Asp Phe Arg	
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 313 318 323 328

gac tca aaa caa gaa tcc aaa ctg tgc tgt ttt aca gag agc cct gaa 1360  
 Asp Ser Lys Gln Glu Ser Lys Leu Cys Cys Phe Thr Glu Ser Pro Glu  
 329 334 339 344

agt gaa ccc caa gaa gca tcc ttc ccc agc ttc ccc acc aca cag gcc 1408  
 Ser Glu Pro Gln Glu Ala Ser Phe Pro Ser Phe Pro Thr Thr Gln Ala  
 345 350 355 360

acc gct ggc aaa cca gaa tga ga cggaggatga caaactgccc gccatggcag 1461  
 Thr Ala Gly Lys Pro Glu \*  
 361 366

attacattgc caactgcacc gtgaagggtgg accagctggg cagtgacgac atccacaatg 1521

cgctcaagca gaccccaaaag gtccttgtgg tccagtcggt tgacatgttc aaagacaaag 1581

acctgactgg gcccatgaac gagaaccatg gacttaatta cacgccctg ctctactcta 1641

ggggcaaccc aggcattcatg tccccactgg ccaagaaaaa gcttttgtcc caagtgagtg 1701

gggccagcct ctccagcagc tacccttatg gctccccacc ccctttgatc agcaaaaaga 1761

aactgattgc tagggatgac ttgtgttcca gtttgtccca gacccaccat ggccaaagca 1821

ctgaccatat ggcggtcagc cggccatcag tgattcagca cgtccagagt ttcagaagca 1881

agccctcgga agagagaaa accatcaatg acatctttaa gcatgagaaa ctgagtcgat 1941  
 cagatcccca ccgctgcagc ttctccaagc atcaccttaa ccccttgct gactcctacg 2001  
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 tgagcccgca gaacattggg gggcgcgggc cgatcaagcg cagcctggag gatttggacc 2661  
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 ctgggaagga gaaggcctct gagcaggaga gtgaaggcag caaagcagcg cacggtgggc 2781  
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 cctgattttt gtgggacaac ttagccac aaactgactg gctggtgagt cttgactccc 3381  
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 ggatttgtga atatccagga agaacttaga ggacccatc tgagttcgga tggtcaggaa 3501  
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agatggcaag g gatgcccct ctttttcata aaactctcca aggttcaatc aatgcaatgt 3621  
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 actgtt 3687

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 ctgcaggag atg tgt aca aag aca atc cca gtc ctc tgg gga tgt ttc 168  
 Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe  
 1 5 10  
 ctc ctg tgg aat ctc tat gtc tca tcc tct cag acc att tac cct gga 216  
 Leu Leu Trp Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly  
 14 19 24 29  
 atc aag gca agg att act cag agg gca ctt gac tat ggt gtt caa gct 264  
 Ile Lys Ala Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala  
 30 35 40 45  
 gga atg aag atg att gag caa atg cta aaa gaa aag aaa ctc cca gat 312  
 Gly Met Lys Met Ile Glu Gln Met Leu Lys Glu Lys Lys Leu Pro Asp  
 46 51 56 61  
 tta agc ggt tct gag tct ctt gaa ttt cta aaa gtt gat tat gta aac 360  
 Leu Ser Gly Ser Glu Ser Leu Glu Phe Leu Lys Val Asp Tyr Val Asn  
 62 67 72 77  
 tac aat ttt tca aat ata aaa atc agt gcc ttt tca ttt cca aat acc 408  
 Tyr Asn Phe Ser Asn Ile Lys Ile Ser Ala Phe Ser Phe Pro Asn Thr  
 78 83 88 93  
 tca ttg gct ttt gtg cct gga gtg gga atc aaa gcg cta acc aac cat 456  
 Ser Leu Ala Phe Val Pro Gly Val Gly Ile Lys Ala Leu Thr Asn His  
 94 99 104 109  
 ggc act gcc aac atc agc aca gac tgg ggg ttc gag tct cca ctt ttt 504  
 Gly Thr Ala Asn Ile Ser Thr Asp Trp Gly Phe Glu Ser Pro Leu Phe  
 110 115 120 125  
 gtt ctg tat aac tcc ttt gct gag ccc atg gag aaa ccc att tta aag 552  
 Val Leu Tyr Asn Ser Phe Ala Glu Pro Met Glu Lys Pro Ile Leu Lys

126	131	136	141	
aac tta aat gaa atg	ctc tgt ccc att att	gca agt gaa gtc aaa gcg		600
Asn Leu Asn Glu Met	Leu Cys Pro Ile Ile	Ala Ser Glu Val Lys Ala		
142	147	152	157	
cta aat gcc aac ctc	agc aca ctg gag gtt	tta acc aag att gac aac		648
Leu Asn Ala Asn Leu	Ser Thr Leu Glu Val	Leu Thr Lys Ile Asp Asn		
158	163	168	173	
tac act ctg ctg gat	tac tcc cta atc agt	tct cca gaa att act gag		696
Tyr Thr Leu Leu Asp	Tyr Ser Leu Ile Ser	Ser Pro Glu Ile Thr Glu		
174	179	184	189	
aac tac ctt gac ctg	aac ttg aag ggt gta	tac cca ctg gaa aac		744
Asn Tyr Leu Asp Leu	Asn Leu Lys Gly Val	Phe Tyr Pro Leu Glu Asn		
190	195	200	205	
ctc acc gac ccc ccc	ttc tca cca gtt cct	ttt gtg ctc cca gaa cgc		792
Leu Thr Asp Pro Pro	Phe Ser Pro Val Pro	Phe Val Leu Pro Glu Arg		
206	211	216	221	
agc aac tcc atg ctc	tac att gga atc gcc	gag tat ttc ttt aaa tct		840
Ser Asn Ser Met Leu	Tyr Ile Gly Ile Ala	Glu Tyr Phe Phe Lys Ser		
222	227	232	237	
gcg tcc ttt gct cat	ttc aca gct ggg gtt	ttc aat gtc act ctc tcc		888
Ala Ser Phe Ala His	Phe Thr Ala Gly Val	Phe Asn Val Thr Leu Ser		
238	243	248	253	
acc gaa gag att tcc	aac cat ttt gtt caa	aac tct caa ggc ctt ggc		936
Thr Glu Glu Ile Ser	Asn His Phe Val Gln	Asn Ser Gln Gly Leu Gly		
254	259	264	269	
aac gtg ctc tcc cgg	att gca gag atc tac	atc ttg tcc cag ccc ttc		984
Asn Val Leu Ser Arg	Ile Ala Glu Ile Tyr	Ile Leu Ser Gln Pro Phe		
270	275	280	285	
atg gtg agg atc atg	gcc aca gag cct ccc	ata atc aat cta caa cca		1032
Met Val Arg Ile Met	Ala Thr Glu Pro Pro	Ile Ile Asn Leu Gln Pro		
286	291	296	301	
ggc aat ttc acc ctg	gac atc cct gcc tcc	atc atg atg ctc acc caa		1080
Gly Asn Phe Thr Leu	Asp Ile Pro Ala Ser	Ile Met Met Leu Thr Gln		
302	307	312	317	
ccc aag aac tcc aca	gtt gaa acc atc gtt	tcc atg gac ttc gtt gct		1128
Pro Lys Asn Ser Thr	Val Glu Thr Ile Val	Ser Met Asp Phe Val Ala		
318	323	328	333	
agt acc agt gtt ggc	ctg gtt att ttg gga	caa aga ctg gtc tgc tcc		1176
Ser Thr Ser Val Gly	Leu Val Ile Leu Gly	Gln Arg Leu Val Cys Ser		
334	339	344	349	
ttg tct ctg aac aga	ttc cgc ctt gct ttg	cca gag tcc aat cgc agc		1224
Leu Ser Leu Asn Arg	Phe Arg Leu Ala Leu	Pro Glu Ser Asn Arg Ser		
350	355	360	365	

aac att gag gtc ttg agg ttt gaa aat att cta tcg tcc att ctt cac	1272
Asn Ile Glu Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu His	
366 371 376 381	
ttt gga gtc ctc cca ctg gcc aat gca aaa ttg cag caa gga ttt cct	1320
Phe Gly Val Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe Pro	
382 387 392 397	
ctg ccc aat cca cac aaa ttc tta ttc gtc aat tca gat att gaa gtt	1368
Leu Pro Asn Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu Val	
398 403 408 413	
ctt gag ggt ttc ctt ttg att tcc acc gac ctg aag tat gaa aca tcc	1416
Leu Glu Gly Phe Leu Leu Ile Ser Thr Asp Leu Lys Tyr Glu Thr Ser	
414 419 424 429	
tca aag cag cag cca agt ttc cac gta tgg gaa ggt ctg aac ctg ata	1464
Ser Lys Gln Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu Ile	
430 435 440 445	
agc aga cag tgg agg ggg aag tca gcc cct tga ttgccggt ttgcaattca	1515
Ser Arg Gln Trp Arg Gly Lys Ser Ala Pro *	
446 451 456	
ccccaggaag taaatggtcc ttaatcctac aactactgta aaccaggaag ggaaagacag	1575
tacacactgg aattgtaaag cccttgtaga ttgcttaggc agaaagtttt ctttcttaag	1635
ccctcaggaa ccagaaataa ggcagactct gttaaaggga taaatagagg tgtctgaatg	1695
tgagtgtatg catgctgcgt gtgtctgtgt ttatgtttgt ttgtttgttt ggggcaagaa	1755
agattctagg acaagagcta ggcattgtact tctgaccagg tgggtaagca actctaagtc	1815
tgtatttgta ttggtcattc tcagtggaaa tcccttaggc cctctagtgg ttttccccta	1875
cctgcatatt ggttttcatg ttttatattc actgttacta ttttctgtgg	1925

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 <212> DNA  
 <213> Homo sapiens

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 <222> (611)..(904)

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catgcctgta atctcagcac tttgggaggt cggggcagga ggacttgagg cctagagttt	120
gagaccagcc tgggcaacat agcgagcacc ccattctccag aaaaaattta aaaattggct	180





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<220>
<221> CDS
<222> (262) .. (594)
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1246

<210> 370  
 <211> 1902  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (981)..(1880)

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<400> 370
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taagggcaaa gtgagttaat gtgtagacaa aggcgaggga caagagagag ttaacatcta      120
gacagtggaa aaagccatgg tgtgtggttt ctgggaacca ccaacacttg caggttttagc      180
tttttcccag ggttgactac aagaaagaaa accatgtttt tgcaagatta aaatgtgggt      240
gagtgtgcct aaattaacca tccccatttt tatcatattt ccaccatcac ttcagggttt      300
taagagtcag tgctcacctg ggccggagctg gtagtacatt ttgcttctta gaaagctaag      360
tcctgggttc cgtctgattt taggttccag gaacttcctg agaacacccg atcgagagg      420
gtaattttct ggagtttggt ttgcagggat agctgggagt atggccaccc tgctccacga      480
tgccgtaatg aatccagcag aagtggtgaa gcagcgcttg cagatgtaca actcgagca      540
ccggtcagca atcagctgca tccggacggt gtggaggacc gagggggttg gggccttcta      600
ccggagctac accacgcagc tgaccatgaa catccccctc cagtccatcc acttcatcac      660
ctatgagttc ctgcaggagc aggtcaaccc ccaccggacc tacaacccgc attcccacat      720
catctcaggc gggetggccg gggccctcgc cgcgcccgcc acgaccccc tggacgtctg      780
taaaaccctt ctgaacactc aggagaacgt ggccctctcg ctggccaaca tcagcggccg      840
gctggtggtg cctatgggcc ctctgctccc caatgcctta gagagaggag gggacggcac      900
ggccgctcac cggaaggctg tgtgcgggga catccgagag gtctgggagc tggaccggct      960
gctgccttgt gacatccggg      atg gcg cct tca tta cta tgc cct ttc act      1010
                        Met Ala Pro Ser Leu Leu Cys Pro Phe Thr
                        1                      5

gct atg cac aaa acc gtg ggg agg gcc tcc tgc gcc ccg ccg agc tgg      1058
Ala Met His Lys Thr Val Gly Arg Ala Ser Cys Ala Pro Pro Ser Trp
11                      16                      21                      26

cgg atg gag ctg cgc agc ggg agc gtg ggc agc cag gcg gtg gcg cgg      1106
Arg Met Glu Leu Arg Ser Gly Ser Val Gly Ser Gln Ala Val Ala Arg
27                      32                      37                      42

agg atg gat ggg gac agc cga gat ggc ggc ggc ggc aag gac gcc acc      1154
Arg Met Asp Gly Asp Ser Arg Asp Gly Gly Gly Gly Lys Asp Ala Thr

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43	48	53	58	
ggg tcg gag gac tac gag aac ctg ccg act agc gcc tcc gtg tcc acc				1202
Gly Ser Glu Asp Tyr Glu Asn Leu Pro Thr Ser Ala Ser Val Ser Thr				
59	64	69	74	
cac atg aca gca gga gcg atg gcc ggg atc ctg gag cac tcg gtc atg				1250
His Met Thr Ala Gly Ala Met Ala Gly Ile Leu Glu His Ser Val Met				
75	80	85	90	
tac ccg gtg gac tcg gtg aag aca cga atg cag agt ttg agt cca gat				1298
Tyr Pro Val Asp Ser Val Lys Thr Arg Met Gln Ser Leu Ser Pro Asp				
91	96	101	106	
ccc aaa gcc cag tac aca agt gtc tac gga gcc ctc aag aaa atc atg				1346
Pro Lys Ala Gln Tyr Thr Ser Val Tyr Gly Ala Leu Lys Lys Ile Met				
107	112	117	122	
cgg acc gaa ggc ttc tgg agg ccc ttg cga ggc gtc aac gtc atg atc				1394
Arg Thr Glu Gly Phe Trp Arg Pro Leu Arg Gly Val Asn Val Met Ile				
123	128	133	138	
atg ggt gca ggg cca gcc cat gcc atg tat ttt gcc tgc tat gaa aac				1442
Met Gly Ala Gly Pro Ala His Ala Met Tyr Phe Ala Cys Tyr Glu Asn				
139	144	149	154	
atg aaa agg act tta aat gac gtt ttc cac cac caa gga aac agc cac				1490
Met Lys Arg Thr Leu Asn Asp Val Phe His His Gln Gly Asn Ser His				
155	160	165	170	
cta gcc aac ggg ata gct ggg agt atg gcc acc ctg ctc cac gat gcg				1538
Leu Ala Asn Gly Ile Ala Gly Ser Met Ala Thr Leu Leu His Asp Ala				
171	176	181	186	
gta atg aat cca gca gaa gtg gtg aag cag cgc ttg cag atg tac aac				1586
Val Met Asn Pro Ala Glu Val Val Lys Gln Arg Leu Gln Met Tyr Asn				
187	192	197	202	
tcg cag cac cgg tca gca atc agc tgc atc cgg acg gtg tgg agg acc				1634
Ser Gln His Arg Ser Ala Ile Ser Cys Ile Arg Thr Val Trp Arg Thr				
203	208	213	218	
gag ggg ttg ggg gcc ttc tac cgg agc tac acc acg cag ctg acc atg				1682
Glu Gly Leu Gly Ala Phe Tyr Arg Ser Tyr Thr Thr Gln Leu Thr Met				
219	224	229	234	
aac atc ccc ttc cag tcc atc cac ttc atc acc tat gag ttc ctg cag				1730
Asn Ile Pro Phe Gln Ser Ile His Phe Ile Thr Tyr Glu Phe Leu Gln				
235	240	245	250	
gag cag gtc aac ccc cac cgg acc tac aac ccg cag tcc cac atc atc				1778
Glu Gln Val Asn Pro His Arg Thr Tyr Asn Pro Gln Ser His Ile Ile				
251	256	261	266	
tca ggc ggg ctg gcc ggg gcc ctc gcc gcg gcc gcg aat tcg gat cct				1826
Ser Gly Gly Leu Ala Gly Ala Leu Ala Ala Ala Ala Asn Ser Asp Pro				
267	272	277	282	

cga gag atc tct ttt ttt ggg ttt ggt ggg gta tct tca tca tcg aat 1874  
 Arg Glu Ile Ser Phe Phe Gly Phe Gly Gly Val Ser Ser Ser Ser Asn  
 283 288 293 298

aga tag ttatatgcac agccattcta tg 1902  
 Arg \*  
 299

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 <212> DNA  
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<220>  
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 aggagtgtta tcttttgagaa ctttttgagg gctgacgaaa gagaaagaga actcaaaagg 120  
 gagaataaga taaagagaaa atgaggctag aaaaacatgc aggagctaga aaggtaaagg 180  
 aaccctgcc ccttgacctt ccttccctct accctc atg gtc ctc tta ctg tcc 234  
 Met Val Leu Leu Leu Ser  
 1

ttg act ttc ttc tct gct tta aca ttc cat tct att tgt caa ctg cgt 282  
 Leu Thr Phe Phe Ser Ala Leu Thr Phe His Ser Ile Cys Gln Leu Arg  
 7 12 17 22

aac aca ggc gta gaa gtg gac att gtt ttc cag aga gtc tcc ttt tta 330  
 Asn Thr Gly Val Glu Val Asp Ile Val Phe Gln Arg Val Ser Phe Leu  
 23 28 33 38

tag tttc ttcctcaacc ttaaaatgct tgtccttttg gcacgttggtg aaggagaaca 387  
 \*  
 39

ctaacgtgcc taagattgga ggtgacgata tctctgtgat gctgggggag aaatcacagg 447

ggcgaaacaa aaactttagg ggtcattgac caaagggggc ctttctttat aaaaaaaggg 507

aattcctggc ttttctttcc catctaattc tcaggagtac cttgaatggc tccttgaaag 567

agagggcaca ggaacctca caccatctct cctttgcttt attcgggatg gaagctttcc 627

aataattact taactgggog ggtgtggcct cttcatgctc tatggagcat ccccttgggg 687

aacagcttaa aaataattag ggagaccaga ccaaggggaag gggggg 733

<210> 372  
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 <212> DNA  
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 <222> (49) .. (468)

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 Met Ser Ser  
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tta ccc gtg cca tac aaa ctg cct gtg tct ttg tct gtt ggt tcc tgc 105  
 Leu Pro Val Pro Tyr Lys Leu Pro Val Ser Leu Ser Val Gly Ser Cys  
 4 9 14 19

gtg ata atc aaa ggg aca cca atc cac tct ttt atc aat gac cca cag 153  
 Val Ile Ile Lys Gly Thr Pro Ile His Ser Phe Ile Asn Asp Pro Gln  
 20 25 30 35

ctg cag gtg gat ttc tac act gac atg gat gag gat tca gat att gcc 201  
 Leu Gln Val Asp Phe Tyr Thr Asp Met Asp Glu Asp Ser Asp Ile Ala  
 36 41 46 51

ttc cgt ttc cga gtg cac ttt ggc aat cat gtg gtc atg aac agg cgt 249  
 Phe Arg Phe Arg Val His Phe Gly Asn His Val Val Met Asn Arg Arg  
 52 57 62 67

gag ttt ggg ata tgg atg ttg gag gag aca aca gac tac gtg ccc ttt 297  
 Glu Phe Gly Ile Trp Met Leu Glu Glu Thr Thr Asp Tyr Val Pro Phe  
 68 73 78 83

gag gat ggc aaa caa ttt gag ctg tgc atc tac gta cat tac aat gag 345  
 Glu Asp Gly Lys Gln Phe Glu Leu Cys Ile Tyr Val His Tyr Asn Glu  
 84 89 94 99

tat gag ata aag gtc aat ggc ata cgc att tac ggc ttt gtc cat cga 393  
 Tyr Glu Ile Lys Val Asn Gly Ile Arg Ile Tyr Gly Phe Val His Arg  
 100 105 110 115

atc ccg cca tca ttt gtg aag atg gtg caa gtg tcg aga gat atc tcc 441  
 Ile Pro Pro Ser Phe Val Lys Met Val Gln Val Ser Arg Asp Ile Ser  
 116 121 126 131

ctg acc tca gtg tgt gtc tgc aat tga gggag atgatcacac tcttcattgt 493  
 Leu Thr Ser Val Cys Val Cys Asn \*  
 132 137

tgaggaatcc ctctttctac ctgaccatgg gattcccaga acctgctaac agaataatcc 553

ctgctcacat tttcccctac acctttgtcat taaaacagca cgaaaactca aaaaa 608

<210> 373  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (40)..(1179)

<400> 373  
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 Met Ser Ser Pro Ser  
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ctc agt gac ctg ggc aag aga gag ccg gcc gcc gcc gcg gac gag cgg 102  
 Leu Ser Asp Leu Gly Lys Arg Glu Pro Ala Ala Ala Ala Asp Glu Arg  
 6 11 16 21

ggc acg cag cag cgc cgg gcc tgc gcc aac gcc acc tgg aac agc atc 150  
 Gly Thr Gln Gln Arg Arg Ala Cys Ala Asn Ala Thr Trp Asn Ser Ile  
 22 27 32 37

cac aac ggg gtg atc gcc gtc ttc cag cgc aag ggg ctg ccc gac cag 198  
 His Asn Gly Val Ile Ala Val Phe Gln Arg Lys Gly Leu Pro Asp Gln  
 38 43 48 53

gag ctc ttc agc ctc aac gag ggc gtc cgg cag ctg ttg aag aca gag 246  
 Glu Leu Phe Ser Leu Asn Glu Gly Val Arg Gln Leu Leu Lys Thr Glu  
 54 59 64 69

ctg ggg tcc ttc ttc acg gag tac ctg cag aac cag ctg ctg aca aaa 294  
 Leu Gly Ser Phe Phe Thr Glu Tyr Leu Gln Asn Gln Leu Leu Thr Lys  
 70 75 80 85

ggc atg gtg atc ctt cgg gac aag att cgc ttc tat gag gga cag aag 342  
 Gly Met Val Ile Leu Arg Asp Lys Ile Arg Phe Tyr Glu Gly Gln Lys  
 86 91 96 101

ctg ctg gac tca ctg gca gag acc tgg gac ttc ttc ttc agt gac gtg 390  
 Leu Leu Asp Ser Leu Ala Glu Thr Trp Asp Phe Phe Phe Ser Asp Val  
 102 107 112 117

ctg ccc atg ctg cag gcc atc ttc tac ccg gtg cag ggc aag gag cca 438  
 Leu Pro Met Leu Gln Ala Ile Phe Tyr Pro Val Gln Gly Lys Glu Pro  
 118 123 128 133

tcg gtg cgc cag ctg gcc ctg ctg cac ttc cgg aat gcc atc acc ctc 486  
 Ser Val Arg Gln Leu Ala Leu Leu His Phe Arg Asn Ala Ile Thr Leu  
 134 139 144 149

agt gtg aag cta gag gat gcg ctg gcc cgg gcc cat gcc cgt gtg ccc 534  
 Ser Val Lys Leu Glu Asp Ala Leu Ala Arg Ala His Ala Arg Val Pro  
 150 155 160 165

cct gcc atc gtg cag atg ctg ctg gtg ctg cag ggg gta cat gag tcc	582
Pro Ala Ile Val Gln Met Leu Leu Val Leu Gln Gly Val His Glu Ser	
166 171 176 181	
agg ggc gtg act gag gac tac ctg cgc ctg gag acg ctg gtc cag aag	630
Arg Gly Val Thr Glu Asp Tyr Leu Arg Leu Glu Thr Leu Val Gln Lys	
182 187 192 197	
gtg gtg tcg cca tac ctg ggc acc tac ggc ctc cac tcc agc gag ggg	678
Val Val Ser Pro Tyr Leu Gly Thr Tyr Gly Leu His Ser Ser Glu Gly	
198 203 208 213	
ccc ttc acc cat tcc tgc atc ctg gaa aag cgc ctc ctc cgc cgc tcc	726
Pro Phe Thr His Ser Cys Ile Leu Glu Lys Arg Leu Leu Arg Arg Ser	
214 219 224 229	
cgc tcg ggg gac gtg ctg gcc aag aac cct gtg gtg cgc tcc aag agc	774
Arg Ser Gly Asp Val Leu Ala Lys Asn Pro Val Val Arg Ser Lys Ser	
230 235 240 245	
tac aac acg cct ctg ctg aac ccc gtg cag gag cac gag gcg gag ggc	822
Tyr Asn Thr Pro Leu Leu Asn Pro Val Gln Glu His Glu Ala Glu Gly	
246 251 256 261	
gcg gcg gcc ggc ggt acc agc atc cgc agg cac tct gtg tcg gag atg	870
Ala Ala Ala Gly Gly Thr Ser Ile Arg Arg His Ser Val Ser Glu Met	
262 267 272 277	
acg tcc tgc ccc gag cct cag ggc ttc tcc gac ccg ccc ggc cag ggc	918
Thr Ser Cys Pro Glu Pro Gln Gly Phe Ser Asp Pro Pro Gly Gln Gly	
278 283 288 293	
ccc acc ggg acc ttc agg tcc tcc ccg gcg ccc cac tca ggg ccc tgc	966
Pro Thr Gly Thr Phe Arg Ser Ser Pro Ala Pro His Ser Gly Pro Cys	
294 299 304 309	
ccc agc aga ctg tac ccc acg acc cag ccc cct gag cag ggc ttg gat	1014
Pro Ser Arg Leu Tyr Pro Thr Thr Gln Pro Pro Glu Gln Gly Leu Asp	
310 315 320 325	
ccc acc cgc agc tcc ctg ccc cgc tcc agc ccg gag aac ctg gtg gac	1062
Pro Thr Arg Ser Ser Leu Pro Arg Ser Ser Pro Glu Asn Leu Val Asp	
326 331 336 341	
cag atc ctg gag tcc gtg gac tcg gat tct gaa ggg att ttc att gac	1110
Gln Ile Leu Glu Ser Val Asp Ser Asp Ser Glu Gly Ile Phe Ile Asp	
342 347 352 357	
ttt ggc cgg ggc cgg ggc tct ggc atg tcc gac ttg gag ggc tct ggg	1158
Phe Gly Arg Gly Arg Gly Ser Gly Met Ser Asp Leu Glu Gly Ser Gly	
358 363 368 373	
ggc cgg cag agt gtc gtg tga gg cctcacagct ggccttgagt ttttactgac	1211
Gly Arg Gln Ser Val Val *	
374 379	
acgtccctgt gtgcgggggt gtccatgtgg cgtgtgtgtg agtgagactt ttttactgag	1271



tcccgccccg ccagccctat cggcctcgtc actggccttg gtcactttgt attttctgtct 1331  
 tggttgaaaa taccatcagc cttccttgct cggcccaggt ctgtttcagg catctgagtc 1391  
 ggcgtttacc cagggggccgg gccagagacg ggggtcggcc gtcgctccc acgctcctcc 1451  
 tgccccagcc ctctggtgtc cacacctgcc cacagagaat gtaaaccag tgggctctgc 1511  
 ccacgccggg ccccaaagt accagactcc agcacacctg tctcctcctg cctgggggtgg 1571  
 ccatggggat ggaagggggt ggaataaaac ctgtcaacct ggaaaaaaaa aaaa 1625

<210> 374  
 <211> 1116  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (163)..(789)

<400> 374  
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 ctaaagggaa taagcttgcg gccgccgca gtctggtatc ctgagcttcg tgagttgagc 120  
 gctgctgctc cgcggtggag tcaccgcacc gctcccgga tc atg gtg ttc tac 174  
 Met Val Phe Tyr  
 1  
 ttc acc agc agc agc gtt aat tca tct gcc tac act att tac atg gga 222  
 Phe Thr Ser Ser Ser Val Asn Ser Ser Ala Tyr Thr Ile Tyr Met Gly  
 5 10 15 20  
 aaa gat aaa tat gaa aat gaa gat ctg atc aag cat ggc tgg cct gaa 270  
 Lys Asp Lys Tyr Glu Asn Glu Asp Leu Ile Lys His Gly Trp Pro Glu  
 21 26 31 36  
 gat atc tgg ttt cat gtg gac aaa ctc tct tgc gct cat gta tac ctt 318  
 Asp Ile Trp Phe His Val Asp Lys Leu Ser Ser Ala His Val Tyr Leu  
 37 42 47 52  
 cga tta cat aag gga gag aat ata gaa gac atc cca aag gaa gtg ctg 366  
 Arg Leu His Lys Gly Glu Asn Ile Glu Asp Ile Pro Lys Glu Val Leu  
 53 58 63 68  
 atg gac tgt gcc cac ctt gtg aag gcc aat agc att caa ggc tgc aag 414  
 Met Asp Cys Ala His Leu Val Lys Ala Asn Ser Ile Gln Gly Cys Lys  
 69 74 79 84  
 atg aac aac gtt aat gtg gta tat acg ccg tgg tct aac ctg aag aaa 462  
 Met Asn Asn Val Asn Val Val Tyr Thr Pro Trp Ser Asn Leu Lys Lys  
 85 90 95 100

aca gct gac atg gat gtg ggg cag ata ggc ttt cac agg cag aag gat	510
Thr Ala Asp Met Asp Val Gly Gln Ile Gly Phe His Arg Gln Lys Asp	
101 106 111 116	
gta aaa att gtg aca gtg gag aag aaa gta aat gag atc ctg aac cga	558
Val Lys Ile Val Thr Val Glu Lys Lys Val Asn Glu Ile Leu Asn Arg	
117 122 127 132	
tta gaa aag acc aaa gtc gag cgg ttc tca gac cta gca gca gag aaa	606
Leu Glu Lys Thr Lys Val Glu Arg Phe Ser Asp Leu Ala Ala Glu Lys	
133 138 143 148	
gaa tgc aga gat cgt gaa gag agg aat gag aaa aaa gcc caa att cag	654
Glu Cys Arg Asp Arg Glu Glu Arg Asn Glu Lys Lys Ala Gln Ile Gln	
149 154 159 164	
gaa atg aaa aag aga gaa aaa gaa gaa atg aag aag aag agg gaa atg	702
Glu Met Lys Lys Arg Glu Lys Glu Glu Met Lys Lys Lys Arg Glu Met	
165 170 175 180	
gat gaa ctt agg agc tat tca tca cta atg aaa gtt gaa aat atg tct	750
Asp Glu Leu Arg Ser Tyr Ser Ser Leu Met Lys Val Glu Asn Met Ser	
181 186 191 196	
tca aat cag gat ggc aat gat tca gat gaa ttc atg taa aaggagaaaa	799
Ser Asn Gln Asp Gly Asn Asp Ser Asp Glu Phe Met *	
197 202 207	
ggagaaaagg acctttgaaa gatgtgaatg tagagacaat tgcagacctt ttggtttcat	859
ctgtgttctg aaatataaaa tacaaccaa attctacctt catcctaccc agaaattatt	919
gattttcaag ttttaaaaaa attgtacctt ttttgctgac agaaaaggat cagatatgta	979
taaaatagtt gaacttgaca gcatataact taaagtgaaa atgtttttgc cagaacatgt	1039
cttggtacct tgtgaaagca ggctgccctt gttcttgaga tagactttaa aatgaaccag	1099
ctctgaaaaa aaaaaaa	1116

<210> 375  
 <211> 510  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (163)..(423)

<400> 375	
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ctaaaggga taagcttgcg gccgcgcga gtctggtatc ctgagcttcg tgagttgagc	120

gctgctgctc cgcggtggag tcaccgcacc gctccccgga tc atg gtg ttc tac 174  
 Met Val Phe Tyr  
 1  
 ttc acc agc agc agc gtt aat tca tct gcc tac act att tac atg gga 222  
 Phe Thr Ser Ser Ser Val Asn Ser Ser Ala Tyr Thr Ile Tyr Met Gly  
 5 10 15 20  
 aaa gat aaa tat gaa aat gaa gat ctg atc aag cat ggc tgg cct gaa 270  
 Lys Asp Lys Tyr Glu Asn Glu Asp Leu Ile Lys His Gly Trp Pro Glu  
 21 26 31 36  
 gat atc tgg ttt cat gtg gac aaa ctc tct tcg gct cat gta tac ctt 318  
 Asp Ile Trp Phe His Val Asp Lys Leu Ser Ser Ala His Val Tyr Leu  
 37 42 47 52  
 cga tta cat aag gga gag aat ata gaa gac atc cca aag gaa gtg ctg 366  
 Arg Leu His Lys Gly Glu Asn Ile Glu Asp Ile Pro Lys Glu Val Leu  
 53 58 63 68  
 atg gac tgt gcc cac ctt gtg aag gcc aat agc att caa gga gct att 414  
 Met Asp Cys Ala His Leu Val Lys Ala Asn Ser Ile Gln Gly Ala Ile  
 69 74 79 84  
 cat cac taa tgaaagt tgaaaatatg tcttcaaadc aggatggcca tgattcatat 470  
 His His \*  
 85  
 gaattcatgt aaaaggagaa gaggagaaaa ggacctttga 510

<210> 376  
 <211> 2430  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (959) .. (1345)

<400> 376  
 actcgtccag tgtggtggaa ttcctttcag aggcttccgg aggactgagc agctagaggt 60  
 gattttgcat ttgcgtttcc cgacgttgcc acatctcagg tgaataagtt ctatgaagcg 120  
 ctcacactag tacgtggccc ctcggtggtt tgtcctcgag gtcgaaggtc cagatgtcca 180  
 ggggctgccc tggactccag agtgggtgcgg ctgagcaggc tgtggtcttg ggtgcttggg 240  
 cacctcccgt ctctccctgc tcagagttct tctctcctgg gcagccagaa aggatcagaa 300  
 ccggtcacat gcagagcggc ctcccgtatc ccacagcagc tccgttctct aatctgggtc 360  
 ttcagatgog gctgtgtctc ccggcacctt gctggaatgt ggtgcatccc tcggagtcca 420

gcagccctta ggcagagctg ggtgccgagc ttgagtccag gagggcctca gacacctgcg 480

atcttgccagc ctgttgccct ggacagtggg tgtgctgtgg gtggaggatg ggcacctgcc 540

tccacggaag catccccagc ttgcccctca gtcacacgaa gcgtctgtcc ccagcctggg 600

gcatttctga gtggcctcca ctggcctct tcctttttct ggagcaagta tttgaactcc 660

tgcaggcgcc agagatctcc ttacctgttt cccgctaccc ttctccagcc aggtttctgc 720

cctcagccag attgtcctgc agtgacttgc ttttgccat ggagtagtgg ctgctcagtg 780

cctgagattg ttttagcagc agaagggacc gggccccct gctgctggca acacagacgc 840

ttgcttacag ttctctggtc ctggacacct gaggtctcgg cctccccagg acggcccttc 900

cagattctca ggaccacctt gccctccctg cctgtctcc taggtgaccc tggcaaag 958  
atg aga gtg cac att tcg tcc tgc ctg aag gtc cag gag cag atg gcc 1006  
Met Arg Val His Ile Ser Ser Cys Leu Lys Val Gln Glu Gln Met Ala  
1 5 10 15

aac tgc ccc aag ttc gtc ccc gtg gtg ccc aca tca cag cct atc ccc 1054  
Asn Cys Pro Lys Phe Val Pro Val Val Pro Thr Ser Gln Pro Ile Pro  
17 22 27 32

agc aac atc ccc aac agg tcc acc ttc gcc tgc ccg tac tgt ggt gcc 1102  
Ser Asn Ile Pro Asn Arg Ser Thr Phe Ala Cys Pro Tyr Cys Gly Ala  
33 38 43 48

cgc aac ctg gac cag cag gag ctg gtg aag cac tgt gtg gaa agc cac 1150  
Arg Asn Leu Asp Gln Gln Glu Leu Val Lys His Cys Val Glu Ser His  
49 54 59 64

cgc agc gac ccc aac cgc gtg gtg tgc ccc atc tgc tcg gca atg ccc 1198  
Arg Ser Asp Pro Asn Arg Val Val Cys Pro Ile Cys Ser Ala Met Pro  
65 70 75 80

tgg ggg gac ccc agc tac aag agc gcc aac ttc ctg cag cac ctg ctt 1246  
Trp Gly Asp Pro Ser Tyr Lys Ser Ala Asn Phe Leu Gln His Leu Leu  
81 86 91 96

cac cga cac aag ttc tcc tac gac acc ttt gtg gac tac agt att gac 1294  
His Arg His Lys Phe Ser Tyr Asp Thr Phe Val Asp Tyr Ser Ile Asp  
97 102 107 112

gag gag gcc gcc ttc cag gct gct ctg gcc ctg tct ctc tct gag aac 1342  
Glu Glu Ala Ala Phe Gln Ala Ala Leu Ala Leu Ser Leu Ser Glu Asn  
113 118 123 128

tga aggg aagcgcagcc acccgctgc gtctggggtc agggatgtcc ccgctcctgt 1399  
\*

129

gtcgcacctg gcacctgtc gggagcgcac ctcaccggac tgagctcaca ggaggagcct 1459

gcacccgcgc agaagggggag ccggggccga gcctccgggc ctgaatacgg gccagccgcc 1519

gagggcgcca gagcagggcc gcttgggtccc accggcgctcg ctgggttctt cgggtgcttct 1579  
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 cagtcgagcc gggaggaacc caggctgctg ccttggcccag cccgaccctg ccccgggccc 1759  
 gcttccacct tgcgcatctg gtactggctt ttgtgatact taggaaccct ggcattcttt 1819  
 ctatattatc cagtgtgata atcttttcac gttttataga gcaaagacag agcagttact 1879  
 cttcatattg caatatctgt gtttgactag gaataatagt atttttatgg aacatttaca 1939  
 aaatttatatt ttttaagaaa acaatcaaaa caagcattgg gggattgggg caaggatgga 1999  
 aggagcagtg gggcagctgc cagagctcag gcgagccatg gggctctgctg tggggctctgc 2059  
 cctggccacc cactgtgtgt ctgggtcctt gaggtttgta cgtttctctt tgatgaccag 2119  
 gaagaaatcc cagcacccca gccacaggct gtggctgctc ccagcagagg cggggccggc 2179  
 agagaagggg cctcctccac ccagagtcct ggccttggcc cgctgtcacc ttcaaagctg 2239  
 actgtgcccc gctgcgggag gggacggcac cccagtgggtg gcagagcttg ggggcctggg 2299  
 caggggcccc cttggcgggc cgggcaaacac gtcaacattc ttttctgttc ttggcattaa 2359  
 ttattgctgt ctttttttaa aaaaaaaaaaag tttaaataaa atgtctcaga gcataaaaaa 2419  
 aaaaaaaaaa a 2430

<210> 377  
 <211> 5371  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (108) .. (1856)

<400> 377  
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 tgccccggcc gcggtgagg aggaggagga ggaggaggag gaggagg atg atc tcc 116  
 Met Ile Ser  
 1  
 aga tac act cgg aag gcg gtg cca cag agc ttg gag ctg aaa gga ata 164  
 Arg Tyr Thr Arg Lys Ala Val Pro Gln Ser Leu Glu Leu Lys Gly Ile  
 4 9 14 19  
 aca aaa cat gct ctt aac cat cat ccc cct cca gag aag ctg gag gaa 212

Thr	Lys	His	Ala	Leu	Asn	His	His	Pro	Pro	Pro	Glu	Lys	Leu	Glu	Glu		
20					25					30					35		
att	tcc	ccc	acc	agt	gac	agt	cat	gag	aaa	gac	aca	agt	tcc	caa	agc	260	
Ile	Ser	Pro	Thr	Ser	Asp	Ser	His	Glu	Lys	Asp	Thr	Ser	Ser	Gln	Ser		
36					41					46					51		
aag	tct	gac	atc	aca	aga	gaa	tca	tct	ttt	aca	tca	gcc	gac	act	ggg	308	
Lys	Ser	Asp	Ile	Thr	Arg	Glu	Ser	Ser	Phe	Thr	Ser	Ala	Asp	Thr	Gly		
52					57					62					67		
aat	tca	ctg	tct	gct	ttt	cca	agt	tat	aca	ggc	gca	ggg	ata	tct	act	356	
Asn	Ser	Leu	Ser	Ala	Phe	Pro	Ser	Tyr	Thr	Gly	Ala	Gly	Ile	Ser	Thr		
68					73					78					83		
gaa	gga	agc	tcg	gac	ttc	tcc	tgg	gga	tat	ggg	gaa	ctc	gat	caa	aat	404	
Glu	Gly	Ser	Ser	Asp	Phe	Ser	Trp	Gly	Tyr	Gly	Glu	Leu	Asp	Gln	Asn		
84					89					94					99		
gcc	act	gaa	aaa	gtc	cag	aca	atg	ttc	aca	gcc	att	gat	gaa	ctc	ttg	452	
Ala	Thr	Glu	Lys	Val	Gln	Thr	Met	Phe	Thr	Ala	Ile	Asp	Glu	Leu	Leu		
100					105					110					115		
tat	gag	cag	aag	ttg	agt	gtg	cat	acc	aag	agt	cta	caa	gaa	gag	tgc	500	
Tyr	Glu	Gln	Lys	Leu	Ser	Val	His	Thr	Lys	Ser	Leu	Gln	Glu	Glu	Cys		
116					121					126					131		
caa	cag	tgg	aca	gct	agc	ttt	cct	cac	ctc	agg	att	cta	ggg	agg	cag	548	
Gln	Gln	Trp	Thr	Ala	Ser	Phe	Pro	His	Leu	Arg	Ile	Leu	Gly	Arg	Gln		
132					137					142					147		
ata	atc	act	cca	agt	gaa	ggg	tat	aga	ttg	tat	cct	aga	tcc	cct	tct	596	
Ile	Ile	Thr	Pro	Ser	Glu	Gly	Tyr	Arg	Leu	Tyr	Pro	Arg	Ser	Pro	Ser		
148					153					158					163		
gct	gtt	tcc	gct	tca	tat	gaa	aca	acc	ttg	tct	caa	gaa	aga	gat	tct	644	
Ala	Val	Ser	Ala	Ser	Tyr	Glu	Thr	Thr	Leu	Ser	Gln	Glu	Arg	Asp	Ser		
164					169					174					179		
act	ata	ttt	ggg	ata	agg	gga	aag	aag	tta	cat	ttt	tca	tct	tct	tat	692	
Thr	Ile	Phe	Gly	Ile	Arg	Gly	Lys	Lys	Leu	His	Phe	Ser	Ser	Ser	Tyr		
180					185					190					195		
gct	cat	aaa	gca	tct	tcc	att	gcc	aaa	tcc	tcc	agc	ttt	tgt	tct	atg	740	
Ala	His	Lys	Ala	Ser	Ser	Ile	Ala	Lys	Ser	Ser	Ser	Phe	Cys	Ser	Met		
196					201					206					211		
gaa	aga	gat	gag	gaa	gac	tct	ata	atc	gtc	tca	gaa	gga	ata	att	gag	788	
Glu	Arg	Asp	Glu	Glu	Asp	Ser	Ile	Ile	Val	Ser	Glu	Gly	Ile	Ile	Glu		
212					217					222					227		
gaa	tac	cta	gca	ttc	gat	cac	ata	gat	ata	gaa	gag	gga	ttt	cat	ggg	836	
Glu	Tyr	Leu	Ala	Phe	Asp	His	Ile	Asp	Ile	Glu	Glu	Gly	Phe	His	Gly		
228					233					238					243		
aag	aaa	tca	gaa	gca	gct	aca	gag	aaa	cag	aaa	tta	ggg	tat	cct	ccc	884	
Lys	Lys	Ser	Glu	Ala	Ala	Thr	Glu	Lys	Gln	Lys	Leu	Gly	Tyr	Pro	Pro		

244	249	254	259	
att gct cca ttt tac	tgc atg aaa gaa gat	gtc ctt gct tat gtg	ttt	932
Ile Ala Pro Phe Tyr	Cys Met Lys Glu Asp	Val Leu Ala Tyr Val	Phe	
260	265	270	275	
gac agt gta tgg tgc	aag gtt gtg agc tgt	atg gag cag ttg aca	cgt	980
Asp Ser Val Trp Cys	Lys Val Val Ser Cys	Met Glu Gln Leu Thr	Arg	
276	281	286	291	
agt cac tgg gaa gga	ttt gcc tct gat gat	gag agt aat gtt gca	gtt	1028
Ser His Trp Glu Gly	Phe Ala Ser Asp Asp	Glu Ser Asn Val Ala	Val	
292	297	302	307	
acc aga ccc gat tca	gaa agt tcc tgt gtg	ctg agt gaa cta cat	cct	1076
Thr Arg Pro Asp Ser	Glu Ser Ser Cys Val	Leu Ser Glu Leu His	Pro	
308	313	318	323	
ttg gtg tta ccg cga	gtg cca cag tct aag	gtg ctg tac att acc	tca	1124
Leu Val Leu Pro Arg	Val Pro Gln Ser Lys	Val Leu Tyr Ile Thr	Ser	
324	329	334	339	
aat ccg atg agt ctc	tgt caa gca agc aga	cat cag cca aat gtg	aat	1172
Asn Pro Met Ser Leu	Cys Gln Ala Ser Arg	His Gln Pro Asn Val	Asn	
340	345	350	355	
gat ctc ttg gtt cat	gga atg cct cta cag	cca aga aat ctc tcc	cta	1220
Asp Leu Leu Val His	Gly Met Pro Leu Gln	Pro Arg Asn Leu Ser	Leu	
356	361	366	371	
atg gac aag ctc cta	gat ctt gat gac aag	cta ctt atg agg cct	ggg	1268
Met Asp Lys Leu Leu	Asp Leu Asp Asp Lys	Leu Leu Met Arg Pro	Gly	
372	377	382	387	
tcc agt acc atc ctt	tca act cga aat tgg	cca aat cga gct gtg	gag	1316
Ser Ser Thr Ile Leu	Ser Thr Arg Asn Trp	Pro Asn Arg Ala Val	Glu	
388	393	398	403	
ttt agt aca tca tct	ctg tca tac aca gtg	cag tcc acc agg aga	cgc	1364
Phe Ser Thr Ser Ser	Leu Ser Tyr Thr Val	Gln Ser Thr Arg Arg	Arg	
404	409	414	419	
aat cca cca cca cga	act ctt cat ccg atc	agc acg agc cat tca	tgt	1412
Asn Pro Pro Pro Arg	Thr Leu His Pro Ile	Ser Thr Ser His Ser	Cys	
420	425	430	435	
gct gaa aca cca aga	tct gtg gaa gaa atc	ctc aga gga gcc cga	gtc	1460
Ala Glu Thr Pro Arg	Ser Val Glu Glu Ile	Leu Arg Gly Ala Arg	Val	
436	441	446	451	
cca gtg gca ccc gac	tcg ctc tcc tct ccc	tca ccg acg ccc ctg	agt	1508
Pro Val Ala Pro Asp	Ser Leu Ser Ser Pro	Ser Pro Thr Pro Leu	Ser	
452	457	462	467	
cga aat aat ctg cta	cca cct att ggc aca	gct gaa gtg gaa cat	gtg	1556
Arg Asn Asn Leu Leu	Pro Pro Ile Gly Thr	Ala Glu Val Glu His	Val	
468	473	478	483	

agc act gtg ggg cca caa aga cag atg aaa ccc cat ggc gac tct agt	1604
Ser Thr Val Gly Pro Gln Arg Gln Met Lys Pro His Gly Asp Ser Ser	
484 489 494 499	
cga gct caa agt gcg gtg gtg gat gaa cct aac tat cag cag cca caa	1652
Arg Ala Gln Ser Ala Val Val Asp Glu Pro Asn Tyr Gln Gln Pro Gln	
500 505 510 515	
gaa agg ctc ctt ttg ccc gac ttt ttc ccc agg ccc aac aca act caa	1700
Glu Arg Leu Leu Leu Pro Asp Phe Phe Pro Arg Pro Asn Thr Thr Gln	
516 521 526 531	
tca ttt ttg ctg gat aca cag tat cgt cgc tca tgt gca gtt gag tat	1748
Ser Phe Leu Leu Asp Thr Gln Tyr Arg Arg Ser Cys Ala Val Glu Tyr	
532 537 542 547	
cct cat cag gcc cga cct ggc agg gga tct gca ggt cct cag tta cat	1796
Pro His Gln Ala Arg Pro Gly Arg Gly Ser Ala Gly Pro Gln Leu His	
548 553 558 563	
ggg tct aca aaa tct caa agc gga ggc aga cca gtc tct cga acc agg	1844
Gly Ser Thr Lys Ser Gln Ser Gly Gly Arg Pro Val Ser Arg Thr Arg	
564 569 574 579	
cag gga cca taa ggc aaatgagaag aatctatcag gctgcaggaa acacgagatt	1899
Gln Gly Pro *	
580	
tcatgaagca gtattcagtc atcaagtgat gcagagcttg tatagaagat cgactagaaa	1959
tcatcttcat gaagagtgat tttggcaciaa gtgaccgaag aacaaaacac catagcagcc	2019
aaaaatgaca tgagtgttgt ttctatctcc agttactgtc tctttcagca gaaattaacc	2079
tatcccattg gaaaggcaag tttgtaccca aagatgcaac agtgaataat accccaaatc	2139
actgctcatg ttatctctta acaatgatca gttcaatcat ataggatttg atgagctcac	2199
acatacaciaa aaagcagcaa atcatcagtg acaatatcac tggcttcaga atacttcagc	2259
ctgtgttcat ttctggagag ttgtactcag ttttaagtca ttttgctgtt gaaaatctga	2319
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 gtgggaagat ggcttcagtc tgagagttca ggctgcaata agctgtgatc atgcctctgc 5319  
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 Met Arg  
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 ctt caa ggg gct atc ttt gtg ctc ctg ccc cac ctg ggg ccc atc ctg 105  
 Leu Gln Gly Ala Ile Phe Val Leu Leu Pro His Leu Gly Pro Ile Leu  
 3 8 13 18  
 gtc tgg ctg ttc act cgt gat cac atg tct ggt tgg tgt gag ggc ccg 153  
 Val Trp Leu Phe Thr Arg Asp His Met Ser Gly Trp Cys Glu Gly Pro  
 19 24 29 34  
 agg atg ctg tcc tgg tgc cca ttc tac aaa gtc tta ttg ctt gta cag 201

Arg Met Leu Ser Trp Cys Pro Phe Tyr Lys Val Leu Leu Leu Val Gln  
 35 40 45 50

aca gcc atc tac tct gtc gtg ggc tat gcc tcc tac ctg gtg tgg aag 249  
 Thr Ala Ile Tyr Ser Val Val Gly Tyr Ala Ser Tyr Leu Val Trp Lys  
 51 56 61 66

gac ctg gga ggg ggc ttg ggg tgg ccc ctg gcc ctg cct ctt ggc ctc 297  
 Asp Leu Gly Gly Gly Leu Gly Trp Pro Leu Ala Leu Pro Leu Gly Leu  
 67 72 77 82

tat gct gtt cag ctc acc atc agc tgg act gtc ctg gtt ctc ttt ttc 345  
 Tyr Ala Val Gln Leu Thr Ile Ser Trp Thr Val Leu Val Leu Phe Phe  
 83 88 93 98

aca gtc cac aac cct ggt ctg gcc ctg ctg cac ctg ctg ctg ctg tat 393  
 Thr Val His Asn Pro Gly Leu Ala Leu Leu His Leu Leu Leu Leu Tyr  
 99 104 109 114

ggg ctg gtg gtg agc aca gca ctg atc tgg cat ccc atc aac aaa ctg 441  
 Gly Leu Val Val Ser Thr Ala Leu Ile Trp His Pro Ile Asn Lys Leu  
 115 120 125 130

gct gcc ctg tta ctg ctg ccc tac cta gcc tgg ctc acc gtg act tca 489  
 Ala Ala Leu Leu Leu Leu Pro Tyr Leu Ala Trp Leu Thr Val Thr Ser  
 131 136 141 146

gcc ctc acc tac cac ctg tgg agg gac agc ctt tgt cca gtg cac cag 537  
 Ala Leu Thr Tyr His Leu Trp Arg Asp Ser Leu Cys Pro Val His Gln  
 147 152 157 162

cct cag ccc acg gag aag agt gac tga ggccc tagggcatgg gagaggaggg 589  
 Pro Gln Pro Thr Glu Lys Ser Asp \*  
 163 168

acgcccaggg tggggaggaa gagtctgcaa gcagggtgt ggagttaggg ttcaccccaa 649

tgggaccacc ctctgtgggtc ccctggagcc gtttttctt agaaatcaga gaaatgggaa 709

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ttt tta aag aga ttt	gta gaa gct acc aga	aag tgg aaa gtc ggc att		918
Phe Leu Lys Arg Phe	Val Glu Ala Thr Arg	Lys Trp Lys Val Gly Ile		
199	204	209	214	
ccc tct gat cca ctg	gtg agc ata ggt gct	ctg ata agt aaa gca cat		966
Pro Ser Asp Pro Leu	Val Ser Ile Gly Ala	Leu Ile Ser Lys Ala His		
215	220	225	230	
ttg gag aaa gtc aga	agt tac gtc aag aga	gct ctt gct gaa ggt gcc		1014
Leu Glu Lys Val Arg	Ser Tyr Val Lys Arg	Ala Leu Ala Glu Gly Ala		
231	236	241	246	
caa att tgg tgc ggt	gag gga gtg gat aag	ttg agc ctc cct gcc agg		1062
Gln Ile Trp Cys Gly	Glu Gly Val Asp Lys	Leu Ser Leu Pro Ala Arg		
247	252	257	262	
aac cag gca ggc tac	ttt atg ctt ccc acg	gtg ata aca gac att aag		1110
Asn Gln Ala Gly Tyr	Phe Met Leu Pro Thr	Val Ile Thr Asp Ile Lys		
263	268	273	278	
gat gaa tcc tgc tgc	atg acg gaa gag ata	ttt ggt cca gtg acg tgt		1158
Asp Glu Ser Cys Cys	Met Thr Glu Glu Ile	Phe Gly Pro Val Thr Cys		
279	284	289	294	
gtc gtc ccc ttt gat	agt gaa gag gag gtg	att gaa aga gcc aac aac		1206
Val Val Pro Phe Asp	Ser Glu Glu Glu Val	Ile Glu Arg Ala Asn Asn		
295	300	305	310	
gtt aag tat ggg ctg	gcg gct acc gtg tgg	tcc agc aat gtg ggg cgc		1254
Val Lys Tyr Gly Leu	Ala Ala Thr Val Trp	Ser Ser Asn Val Gly Arg		
311	316	321	326	
gtc cac cgg gtg gct	aag aag ctg cag tct	ggc ttg gtc tgg acc aac		1302
Val His Arg Val Ala	Lys Lys Leu Gln Ser	Gly Leu Val Trp Thr Asn		
327	332	337	342	
tgc tgg ctc atc agg	gag ctg aac ctt cct	ttc ggg ggg atg aag agt		1350
Cys Trp Leu Ile Arg	Glu Leu Asn Leu Pro	Phe Gly Gly Met Lys Ser		
343	348	353	358	
tct gga ata ggt aga	gag gga gcc aag gac	tct tac gac ttc ttc act		1398
Ser Gly Ile Gly Arg	Glu Gly Ala Lys Asp	Ser Tyr Asp Phe Phe Thr		
359	364	369	374	
gag atc aaa acc atc	acc gtt aaa cac tga	t ctttgctaatt ggtggagcca		1449
Glu Ile Lys Thr Ile	Thr Val Lys His *			
375	380			
ctatggccaa tgcttggtg	caggcatcag ttgttcaatg	tggtagatga aaatcatggc		1509
atgaattcca gctatgcctt	gacttggcag aaggttatct	ctagcttata ctcagttctt		1569
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 Met Gly Arg Asn Gln Ser Arg Lys Ala Glu Asn Ser Lys Asn Gln Ser  
 1 5 10

gcc tca tct aca cca aag gat cac agc gcc tcg cca gca acg gaa caa 96  
 Ala Ser Ser Thr Pro Lys Asp His Ser Ala Ser Pro Ala Thr Glu Gln  
 17 22 27 32

agc tgg atg ggg aat gac ttt gat gag ttg aca gaa tta ggc ttc aga 144  
 Ser Trp Met Gly Asn Asp Phe Asp Glu Leu Thr Glu Leu Gly Phe Arg  
 33 38 43 48

aaa tcg gta atg aca aac ttc tcc cag cta aag gag gat gtt cga acc 192  
 Lys Ser Val Met Thr Asn Phe Ser Gln Leu Lys Glu Asp Val Arg Thr  
 49 54 59 64

cat cac aaa gaa gct aaa aac cta gaa aaa aga tta gac aaa tgg cta 240  
 His His Lys Glu Ala Lys Asn Leu Glu Lys Arg Leu Asp Lys Trp Leu  
 65 70 75 80

act aga ata aac agc ata gag gag acc tta aat gac ctg atg gag ctg 288  
 Thr Arg Ile Asn Ser Ile Glu Glu Thr Leu Asn Asp Leu Met Glu Leu  
 81 86 91 96

aaa acc atg gca cga gaa cta cgt gac aca tgc aca agc ttc agt agc 336  
 Lys Thr Met Ala Arg Glu Leu Arg Asp Thr Cys Thr Ser Phe Ser Ser  
 97 102 107 112

cga ttc gat caa gtg gaa gaa ggg gaa ata caa act acc atc aga gaa 384  
 Arg Phe Asp Gln Val Glu Glu Gly Glu Ile Gln Thr Thr Ile Arg Glu  
 113 118 123 128

tat tat gaa cac ctc tac gca aat aaa cta gaa aat cta gaa gaa atg 432  
 Tyr Tyr Glu His Leu Tyr Ala Asn Lys Leu Glu Asn Leu Glu Glu Met  
 129 134 139 144

gat aaa ttc ctg gac aca tac act ctc cca aga cta aac cag gaa gaa 480  
 Asp Lys Phe Leu Asp Thr Tyr Thr Leu Pro Arg Leu Asn Gln Glu Glu  
 145 150 155 160

gtt gaa tcc ctg aat aga cca ata aca ggt tct gaa att gag gca ata 528  
 Val Glu Ser Leu Asn Arg Pro Ile Thr Gly Ser Glu Ile Glu Ala Ile  
 161 166 171 176

att aat agc cta cca acc aaa aaa att cca ggg cca gac aga ttc aca 576

Ile Asn Ser Leu Pro Thr Lys Lys Ile Pro Gly Pro Asp Arg Phe Thr	
177 182 187 192	
gcc aaa ttc tac cag agg tac aaa gag gag ctg agt aac ctg atc cac	624
Ala Lys Phe Tyr Gln Arg Tyr Lys Glu Glu Leu Ser Asn Leu Ile His	
193 198 203 208	
tac ctg gga ctg agc cat cac ctg ctg gca ctg aat ttt atc att gtt	672
Tyr Leu Gly Leu Ser His His Leu Leu Ala Leu Asn Phe Ile Ile Val	
209 214 219 224	
tct ttt ggc aaa aaa agc gcg tgg tct tct gcc caa gtg aag gtg acc	720
Ser Phe Gly Lys Lys Ser Ala Trp Ser Ser Ala Gln Val Lys Val Thr	
225 230 235 240	
gac aca gac ttt gat ggt gtg gaa gtc aga gtg ttt gaa ggc cct ccg	768
Asp Thr Asp Phe Asp Gly Val Glu Val Arg Val Phe Glu Gly Pro Pro	
241 246 251 256	
aag ccc gaa gag cca ctg aaa cgc agc gtc gtt tat atc cac gga gga	816
Lys Pro Glu Glu Pro Leu Lys Arg Ser Val Val Tyr Ile His Gly Gly	
257 262 267 272	
ggc tgg gcc ttg gca agt gca aaa atc agg tat tat gat gag ctg tgt	864
Gly Trp Ala Leu Ala Ser Ala Lys Ile Arg Tyr Tyr Asp Glu Leu Cys	
273 278 283 288	
aca gca atg gct gag gaa ttg aat gct gtc att gtt tcc att gaa tac	912
Thr Ala Met Ala Glu Glu Leu Asn Ala Val Ile Val Ser Ile Glu Tyr	
289 294 299 304	
agg cta gtt cca aag gtt tat ttt cct gag caa att cat gat gtt gta	960
Arg Leu Val Pro Lys Val Tyr Phe Pro Glu Gln Ile His Asp Val Val	
305 310 315 320	
cgg gcc aca aag tat ttc ctg aag cca gaa gtc tta cag aag tat atg	1008
Arg Ala Thr Lys Tyr Phe Leu Lys Pro Glu Val Leu Gln Lys Tyr Met	
321 326 331 336	
gtt gat cca ggc aga att tgc att tct ggt gac agt gct ggt gga aat	1056
Val Asp Pro Gly Arg Ile Cys Ile Ser Gly Asp Ser Ala Gly Gly Asn	
337 342 347 352	
ctg gct gct gcc ctt gga caa cag ttt act caa gat gcc agc cta aaa	1104
Leu Ala Ala Ala Leu Gly Gln Gln Phe Thr Gln Asp Ala Ser Leu Lys	
353 358 363 368	
aat aag ctc aaa cta caa gct tta att tat cca gtt ctt caa gct tta	1152
Asn Lys Leu Lys Leu Gln Ala Leu Ile Tyr Pro Val Leu Gln Ala Leu	
369 374 379 384	
gat ttt aac aca cca tct tat cag caa aat gtg aac acc cca atc ctg	1200
Asp Phe Asn Thr Pro Ser Tyr Gln Gln Asn Val Asn Thr Pro Ile Leu	
385 390 395 400	
ccc cgc tat gtc atg gtg aag tat tgg gtg gac tac ttc aaa ggc aac	1248
Pro Arg Tyr Val Met Val Lys Tyr Trp Val Asp Tyr Phe Lys Gly Asn	

401	406	411	416	
tat gac ttt gtg cag gca atg atc gtt aac aat cac act tca ctt gat				1296
Tyr Asp Phe Val Gln Ala Met Ile Val Asn Asn His Thr Ser Leu Asp				
417	422	427	432	
gtg gaa gag gct gct gct gtc agg gcc cgt cta aac tgg aca tcc ctc				1344
Val Glu Glu Ala Ala Ala Val Arg Ala Arg Leu Asn Trp Thr Ser Leu				
433	438	443	448	
ttg cct gca tcc ttc aca aag aac tac aag cct gtt gta cag acc aca				1392
Leu Pro Ala Ser Phe Thr Lys Asn Tyr Lys Pro Val Val Gln Thr Thr				
449	454	459	464	
ggc aat gcc agg att gtc cag gag ctt cct cag ttg ctg gat gcc cgc				1440
Gly Asn Ala Arg Ile Val Gln Glu Leu Pro Gln Leu Leu Asp Ala Arg				
465	470	475	480	
tcc gcc cca ctc att gca gac cag gca gtg ctg cag ctc ctc cca aag				1488
Ser Ala Pro Leu Ile Ala Asp Gln Ala Val Leu Gln Leu Leu Pro Lys				
481	486	491	496	
acc tac att ctg acg tgt gag cat gat gtc ctc aga gac gat ggc atc				1536
Thr Tyr Ile Leu Thr Cys Glu His Asp Val Leu Arg Asp Asp Gly Ile				
497	502	507	512	
atg tat gcc aag cgt ttg gag agt gcc ggt gtg gag gtg acc ctg gat				1584
Met Tyr Ala Lys Arg Leu Glu Ser Ala Gly Val Glu Val Thr Leu Asp				
513	518	523	528	
cac ttt gag gat ggc ttt cac gga tgt atg att ttc act agc tgg ccc				1632
His Phe Glu Asp Gly Phe His Gly Cys Met Ile Phe Thr Ser Trp Pro				
529	534	539	544	
acc aac ttc tca gtg gga atc cgg act agg aat agt tac atc aag tgg				1680
Thr Asn Phe Ser Val Gly Ile Arg Thr Arg Asn Ser Tyr Ile Lys Trp				
545	550	555	560	
cta gat caa aac ctg taa aggagc aaaacttcca gaagcctcga gccctcttg				1734
Leu Asp Gln Asn Leu *				
561	566			
acctcctaca cctgcttttg aaagacatgc acttttttagt tgactaatc ttcctcccat				1794
tccctctac ttgcgagtta tggaatttct attccataac tgaagtcttt atgataacct				1854
aatttttaaa aatgaatttg actaacttaa gtgcaaaaca tgtaaatttg gttcccagag				1914
tgggccaatc totctgttct tgttatctta gccaaactata ctgataccta cagctacaga				1974
aagcaggact aggaactgga aataactttg ggtcctgcct tcattaggac gttcttttta				2034
gaagcagttc ttccagctct ggatcataga gtgaccttta ataagttaaa aaaacgagga				2094
ctccttaatt ctgctagagt taaccttgag ttcagagcag tattaaatgc gtgcactttc				2154
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2232

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<212> DNA  
<213> Homo sapiens

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<222> (355) .. (2223)

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gcgcgacagg gaaaataaaa gaagcaaaaa caggccctgc tgtgaggggac cacgaggcag 180  
tgccaggatg aaagagttgg agtaacctag gtgattctga gtgaatcagt caggaggcct 240  
tcctggaggg ggctgaggcc ccagcttctg gccaccacaa cgtatcaagc tatctccagg 300  
gttgggctca ggactcagag ctgacgcagc tgggggtgcc cttgggtctg gagg atg 357  
Met  
1  
agg ctc ctc cgc aga cgc cac atg ccc ctg cgc ctg gcc atg gtg ggc 405  
Arg Leu Leu Arg Arg Arg His Met Pro Leu Arg Leu Ala Met Val Gly  
2 7 12 17  
tgc gcc ttt gtg ctc ttc ctc ttc ctc ctg cat agg gat gtg agc agc 453  
Cys Ala Phe Val Leu Phe Leu Phe Leu Leu His Arg Asp Val Ser Ser  
18 23 28 33  
aga gag gag gcc aca gag aag ccg tgg ctg aag tcc ctg gtg agc cgg 501  
Arg Glu Glu Ala Thr Glu Lys Pro Trp Leu Lys Ser Leu Val Ser Arg  
34 39 44 49  
aag gat cac gtc ctg gac ctc atg ctg gag gcc atg aac aac ctt aga 549  
Lys Asp His Val Leu Asp Leu Met Leu Glu Ala Met Asn Asn Leu Arg  
50 55 60 65  
gat tca atg ccc aag ctc caa atc agg gct cca gaa gcc cag cag act 597  
Asp Ser Met Pro Lys Leu Gln Ile Arg Ala Pro Glu Ala Gln Gln Thr  
66 71 76 81  
ctg ttc tcc ata aat cag tcc tgc ctc cct ggg ttc tat acc cca gct 645  
Leu Phe Ser Ile Asn Gln Ser Cys Leu Pro Gly Phe Tyr Thr Pro Ala  
82 87 92 97  
gaa ctg aag ccc ttc tgg gaa cgg cca cca cag gac ccc aat gcc cct 693  
Glu Leu Lys Pro Phe Trp Glu Arg Pro Pro Gln Asp Pro Asn Ala Pro  
98 103 108 113

ggg gca gat gga aaa gca ttt cag aag agc aag tgg acc ccc ctg gag	741
Gly Ala Asp Gly Lys Ala Phe Gln Lys Ser Lys Trp Thr Pro Leu Glu	
114 119 124 129	
acc cag gaa aag gaa gaa ggc tat aag aag cac tgt ttc aat gcc ttt	789
Thr Gln Glu Lys Glu Glu Gly Tyr Lys Lys His Cys Phe Asn Ala Phe	
130 135 140 145	
gcc agc gac cgg atc tcc ctg cag agg tcc ctg ggg cca gac acc cga	837
Ala Ser Asp Arg Ile Ser Leu Gln Arg Ser Leu Gly Pro Asp Thr Arg	
146 151 156 161	
cca cct gag tgt gtg gac cag aag ttc cgg cgc tgc ccc cca ctg gcc	885
Pro Pro Glu Cys Val Asp Gln Lys Phe Arg Arg Cys Pro Pro Leu Ala	
162 167 172 177	
acc acc agc gtg atc att gtg ttc cac aac gaa gcc tgg tcc aca ctg	933
Thr Thr Ser Val Ile Ile Val Phe His Asn Glu Ala Trp Ser Thr Leu	
178 183 188 193	
ctg cga aca gtg tac agc gtc cta cac acc acc cct gcc atc ttg ctc	981
Leu Arg Thr Val Tyr Ser Val Leu His Thr Thr Pro Ala Ile Leu Leu	
194 199 204 209	
aag gag atc ata ctg gtg gat gat gcc agc aca gag gag cac cta aag	1029
Lys Glu Ile Ile Leu Val Asp Asp Ala Ser Thr Glu Glu His Leu Lys	
210 215 220 225	
gag aag ctg gag cag tac gtg aag cag ctg cag gtg gtg agg gtg gtg	1077
Glu Lys Leu Glu Gln Tyr Val Lys Gln Leu Gln Val Val Arg Val Val	
226 231 236 241	
cgg cag gag gag cgg aag ggg ctg atc acc gcc cgg ctg ctg ggg gcc	1125
Arg Gln Glu Glu Arg Lys Gly Leu Ile Thr Ala Arg Leu Leu Gly Ala	
242 247 252 257	
agc gtg gca cag gcg gag gtg ctc acg ttc ctg gat gcc cac tgt gag	1173
Ser Val Ala Gln Ala Glu Val Leu Thr Phe Leu Asp Ala His Cys Glu	
258 263 268 273	
tgc ttc cac ggc tgg ctg gag ccc ctc ctg gct cga atc gct gag gac	1221
Cys Phe His Gly Trp Leu Glu Pro Leu Leu Ala Arg Ile Ala Glu Asp	
274 279 284 289	
aag aca gtg gtg gtg agc cca gac atc gtc acc atc gac ctt aat act	1269
Lys Thr Val Val Val Ser Pro Asp Ile Val Thr Ile Asp Leu Asn Thr	
290 295 300 305	
ttt gag ttc gcc aag ccc gtc cag agg ggc aga gtc cat agc cga ggc	1317
Phe Glu Phe Ala Lys Pro Val Gln Arg Gly Arg Val His Ser Arg Gly	
306 311 316 321	
aac ttt gac tgg agc ctg acc ttc ggc tgg gaa aca ctt cct cca cat	1365
Asn Phe Asp Trp Ser Leu Thr Phe Gly Trp Glu Thr Leu Pro Pro His	
322 327 332 337	

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Glu Lys Gln Arg Arg Lys Asp Glu Thr Tyr Pro Ile Lys Ser Pro Thr	
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Phe Ala Gly Gly Leu Phe Ser Ile Ser Lys Ser Tyr Phe Glu His Ile	
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Gly Thr Tyr Asp Asn Gln Met Glu Ile Trp Gly Gly Glu Asn Val Glu	
370 375 380 385	
atg tcc ttc cgg gtg tgg cag tgt ggg ggc cag ctg gag atc atc ccc	1557
Met Ser Phe Arg Val Trp Gln Cys Gly Gly Gln Leu Glu Ile Ile Pro	
386 391 396 401	
tgc tct gtc gta ggc cat gtg ttc cgg acc aag agc ccc cac acc ttc	1605
Cys Ser Val Val Gly His Val Phe Arg Thr Lys Ser Pro His Thr Phe	
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ccc aag ggc act agt gtc att gct cgc aat caa gtg cgc ctg gca gag	1653
Pro Lys Gly Thr Ser Val Ile Ala Arg Asn Gln Val Arg Leu Ala Glu	
418 423 428 433	
gtc tgg atg gac agc tac aag aag att ttc tat agg aga aat ctg cag	1701
Val Trp Met Asp Ser Tyr Lys Lys Ile Phe Tyr Arg Arg Asn Leu Gln	
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gca gca aag atg gcc caa gag aaa tcc ttc ggt gac att tcg gaa cga	1749
Ala Ala Lys Met Ala Gln Glu Lys Ser Phe Gly Asp Ile Ser Glu Arg	
450 455 460 465	
ctg cag ctg agg gaa caa ctg cac tgt cac aac ttt tcc tgg tac ctg	1797
Leu Gln Leu Arg Glu Gln Leu His Cys His Asn Phe Ser Trp Tyr Leu	
466 471 476 481	
cac aat gtc tac cca gag atg ttt gtt cct gac ctg acg ccc acc ttc	1845
His Asn Val Tyr Pro Glu Met Phe Val Pro Asp Leu Thr Pro Thr Phe	
482 487 492 497	
tat ggt gcc atc aag aac ctc ggc acc aac caa tgc ctg gat gtg ggt	1893
Tyr Gly Ala Ile Lys Asn Leu Gly Thr Asn Gln Cys Leu Asp Val Gly	
498 503 508 513	
gag aac aac cgc ggg ggg aag ccc ctc atc atg tac tcc tgc cac ggc	1941
Glu Asn Asn Arg Gly Gly Lys Pro Leu Ile Met Tyr Ser Cys His Gly	
514 519 524 529	
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Leu Gly Gly Asn Gln Tyr Phe Glu Tyr Thr Thr Gln Arg Asp Leu Arg	
530 535 540 545	
cac aac atc gca aag cag ctg tgt cta cat gtc agc aag ggt gct ctg	2037
His Asn Ile Ala Lys Gln Leu Cys Leu His Val Ser Lys Gly Ala Leu	
546 551 556 561	
ggc ctt ggg agc tgt cac ttc act ggc aag aat agc cag gtc ccc aag	2085

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Asp	Glu	Glu	Trp	Glu	Leu	Ala	Gln	Asp	Gln	Leu	Ile	Arg	Asn	Ser	Gly	
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Ser	Gly	Thr	Cys	Leu	Thr	Ser	Gln	Asp	Lys	Lys	Pro	Ala	Met	Ala	Pro	
594					599					604					609	
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Cys	Asn	Pro	Ser	Asp	Pro	His	Gln	Leu	Trp	Leu	Phe	Val	*			
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cctgaaagca tggataatta ttcacatttc cacgagctga gggtcacgga agaggaaata	180
aatgtgctaa agcaggatct gcagaatgca ttagaagaaa gtgaaagaaa taaagagaaa	240

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 gagaaagcat ttttgtttga gaaataccaa gaagcccaag aagaaatcat gtaattaaaa 420  
 gacacactaa aaagtcagat gacacaggaa gccagtgatg aagctgagga catgaaagaa 480  
 gccatgaata gg atg ata gat gaa ctc aat aaa cag gtg agc gag ctg 528  
                   Met Ile Asp Glu Leu Asn Lys Gln Val Ser Glu Leu  
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 tca cag ctg tac aaa gaa gcc cag gct gag ctg gag gat tac agg aag 576  
 Ser Gln Leu Tyr Lys Glu Ala Gln Ala Glu Leu Glu Asp Tyr Arg Lys  
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 agg aaa tct cta gag gat gtc aca gct gaa tat atc cat aaa gca gag 624  
 Arg Lys Ser Leu Glu Asp Val Thr Ala Glu Tyr Ile His Lys Ala Glu  
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 cat gag aaa ctg atg caa ttg aca aac gtg tcc agg gct aaa gca gaa 672  
 His Glu Lys Leu Met Gln Leu Thr Asn Val Ser Arg Ala Lys Ala Glu  
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 gat gca ctg tct gaa atg aag tct cag tat tca aaa gtg ttg aat gag 720  
 Asp Ala Leu Ser Glu Met Lys Ser Gln Tyr Ser Lys Val Leu Asn Glu  
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 Leu Thr Gln Leu Lys Gln Leu Val Asp Ala Gln Lys Glu Asn Ser Val  
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 tct atc aca gaa cat ttg caa gtg ata acc acg ctg cgg act gca gca 816  
 Ser Ile Thr Glu His Leu Gln Val Ile Thr Thr Leu Arg Thr Ala Ala  
   93                  98                  103                  108  
 aaa gag atg gaa gaa aaa ata agc aat ctt aag gaa cac ctt gca agc 864  
 Lys Glu Met Glu Glu Lys Ile Ser Asn Leu Lys Glu His Leu Ala Ser  
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 aag gaa gtg gaa gta gca aag ctg gag aaa caa ctc tta gaa gag aaa 912  
 Lys Glu Val Glu Val Ala Lys Leu Glu Lys Gln Leu Leu Glu Glu Lys  
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 Ala Ala Met Thr Asp Ala Met Val Pro Arg Ser Ser Tyr Glu Lys Leu  
  141                 146                 151                 156  
 cag tca tcc tta gag agt gaa gtg agt gtg ttg gca tcg aaa tta aag 1008  
 Gln Ser Ser Leu Glu Ser Glu Val Ser Val Leu Ala Ser Lys Leu Lys  
  157                 162                 167                 172  
 gaa tct gtg aaa gag aaa gag aag gtc cat tca gag gtt gtc cag att 1056  
 Glu Ser Val Lys Glu Lys Glu Lys Val His Ser Glu Val Val Gln Ile  
  173                 178                 183                 188

aga agt gag gtc tca cag gtg aaa aga gaa aag gaa aat att cag act 1104  
 Arg Ser Glu Val Ser Gln Val Lys Arg Glu Lys Glu Asn Ile Gln Thr 204  
 189 194 199

ctc ttg aaa tcc aaa gag caa gaa gta aat gaa ctt ctg caa aaa ttc 1152  
 Leu Leu Lys Ser Lys Glu Gln Glu Val Asn Glu Leu Leu Gln Lys Phe 220  
 205 210 215

cag caa gct cag gaa gaa ctt gca gaa atg aaa aga tac tct gag agc 1200  
 Gln Gln Ala Gln Glu Glu Leu Ala Glu Met Lys Arg Tyr Ser Glu Ser 236  
 221 226 231

tct tca aaa ctg gag gaa gat aaa gat aaa aag ata aat gag atg tcg 1248  
 Ser Ser Lys Leu Glu Glu Asp Lys Asp Lys Lys Ile Asn Glu Met Ser 252  
 237 242 247

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 Lys Glu Val Thr Lys Leu Lys Glu Ala Leu Asn Ser Leu Ser Gln Leu 268  
 253 258 263

tcc tac tca aca agc tca tcc aaa agg cag agt cag cag ctg gag gcg 1344  
 Ser Tyr Ser Thr Ser Ser Ser Lys Arg Gln Ser Gln Gln Leu Glu Ala 284  
 269 274 279

ctg cag cag caa gtc aaa cag ctc cag aac cag ctg gcg gaa tgc aag 1392  
 Leu Gln Gln Gln Val Lys Gln Leu Gln Asn Gln Leu Ala Glu Cys Lys 300  
 285 290 295

aaa caa cac cag gag gtc ata tca gtt tac aga atg cat ctt ctg tat 1440  
 Lys Gln His Gln Glu Val Ile Ser Val Tyr Arg Met His Leu Leu Tyr 316  
 301 306 311

gct gtg cag ggc cag atg gat gaa gat gtc cag aaa gta ctg aag caa 1488  
 Ala Val Gln Gly Gln Met Asp Glu Asp Val Gln Lys Val Leu Lys Gln 332  
 317 322 327

atc ctt acc atg tgt aaa aac cag tct caa aag aag taa agtggattcc 1537  
 Ile Leu Thr Met Cys Lys Asn Gln Ser Gln Lys Lys \* 343  
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cagctggaag gcagctggca ctggcagccc ccttcattgc acctatctcc cccatctcat 300

tgccacggct gaacctcct tctcaatctt ggaacagcac ccccttcttt aaggtgaagc 360

tcccccgca gaaggaagtg atcacatcgg atgagctc atg gcc cat ctt gga 413  
Met Ala His Leu Gly  
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aac tgc ctc ctg tcc atc aag ccc cag gag aag tca gag gga ctt cag 461  
Asn Cys Leu Leu Ser Ile Lys Pro Gln Glu Lys Ser Glu Gly Leu Gln  
6 11 16 21

ctt aat ttt cag cag aat gtg gat gat gca atg aca gtg ctg cct aaa 509  
Leu Asn Phe Gln Gln Asn Val Asp Asp Ala Met Thr Val Leu Pro Lys  
22 27 32 37

ctg gcc aca ggt ctg gat gtc aat gtg cga ttc aca ggc gtc tct gat 557  
Leu Ala Thr Gly Leu Asp Val Asn Val Arg Phe Thr Gly Val Ser Asp  
38 43 48 53

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Phe Glu Tyr Thr Pro Glu Cys Ser Val Phe Asp Leu Leu Gly Ile Pro  
54 59 64 69

ctg tac cat ggc tgg ctt gtt gat cca cag cag agt cct gag gct gcg 653  
Leu Tyr His Gly Trp Leu Val Asp Pro Gln Gln Ser Pro Glu Ala Ala  
70 75 80 85

cgt gca gtt ggg aaa ctg agt tac aac cag ctg gtg gag agg atc atc 701  
Arg Ala Val Gly Lys Leu Ser Tyr Asn Gln Leu Val Glu Arg Ile Ile  
86 91 96 101

acc tgc aaa cac tcc agt gac acc aac ctc gtg aca gaa ggc ctg att 749  
Thr Cys Lys His Ser Ser Asp Thr Asn Leu Val Thr Glu Gly Leu Ile  
102 107 112 117

gca gag cag ttc ctg gag acc acc gcg gcc cat ctg acc tac cac gga 797  
Ala Glu Gln Phe Leu Glu Thr Thr Ala Ala His Leu Thr Tyr His Gly  
118 123 128 133

ctg tgt gag ctg aca gca gct gct aag gag ggt gaa ctt agc gtc ttt 845  
Leu Cys Glu Leu Thr Ala Ala Ala Lys Glu Gly Glu Leu Ser Val Phe  
134 139 144 149

ttc cga aac aac cac ttt agc acc atg act aag cat aag agt cac tta 893  
Phe Arg Asn Asn His Phe Ser Thr Met Thr Lys His Lys Ser His Leu  
150 155 160 165



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Tyr Leu Leu Val Thr Asp Gln Gly Phe Leu Gln Glu Glu Gln Val Val	
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Trp Glu Ser Leu His Asn Val Asp Gly Asp Ser Cys Phe Cys Asp Ser	
182 187 192 197	
gac ttt cac ctg agt cat tcc ctg ggc aag ggg cct gga gca gaa ggt	1037
Asp Phe His Leu Ser His Ser Leu Gly Lys Gly Pro Gly Ala Glu Gly	
198 203 208 213	
ggg agt ggc tcc cca gaa aag cag ctg cag gta gac cag gac tac ctg	1085
Gly Ser Gly Ser Pro Glu Lys Gln Leu Gln Val Asp Gln Asp Tyr Leu	
214 219 224 229	
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Ile Ala Leu Ser Leu Gln Gln Gln Gln Pro Arg Gly Pro Leu Gly Leu	
230 235 240 245	
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Thr Asp Leu Glu Leu Ala Gln Gln Leu Gln Gln Glu Glu Tyr Gln Gln	
246 251 256 261	
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Gln Gln Ala Ala Gln Pro Val Arg Met Arg Thr Arg Val Leu Ser Leu	
262 267 272 277	
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Gln Gly Arg Gly Ala Thr Ser Gly Arg Pro Ala Gly Glu Arg Arg Gln	
278 283 288 293	
agg ccg aag cac gag tca gac tgc att ctg ctg tag ctct gccccagtgc	1327
Arg Pro Lys His Glu Ser Asp Cys Ile Leu Leu *	
294 299 304	
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Ser Val Ala Glu Gly Val Arg Leu Ser Pro Glu Pro Gly Arg Glu Gly	
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gta agg gac tta gca ggg gcg gag gag ttc ggc ggc gga gag gag ggg	144
Val Arg Asp Leu Ala Gly Ala Glu Glu Phe Gly Gly Gly Glu Glu Gly	
33 38 43 48	
aca ggg ctg aca ggg ata aag gag ata ggg gat gga gag gaa gga agt	192
Thr Gly Leu Thr Gly Ile Lys Glu Ile Gly Asp Gly Glu Glu Gly Ser	
49 54 59 64	
gga caa agg cca gag gaa ata ccg atg gac cta acg gta gtg aag cag	240
Gly Gln Arg Pro Glu Glu Ile Pro Met Asp Leu Thr Val Val Lys Gln	
65 70 75 80	
gaa att ata gac tgg cca ggt aca gaa ggc agg ttg gct ggc cag tgg	288
Glu Ile Ile Asp Trp Pro Gly Thr Glu Gly Arg Leu Ala Gly Gln Trp	
81 86 91 96	
gta gaa cag gag gtg gag gat agg cct gag gtg aag gat gag aac gca	336
Val Glu Gln Glu Val Glu Asp Arg Pro Glu Val Lys Asp Glu Asn Ala	
97 102 107 112	
ggc gta ttg gag gtg aag cag gag acg gat agt agt tta gtg gta aaa	384
Gly Val Leu Glu Val Lys Gln Glu Thr Asp Ser Ser Leu Val Val Lys	
113 118 123 128	
gaa gcg aag gtg ggt gaa cca gag gta aag gaa gag aag gta aag gaa	432
Glu Ala Lys Val Gly Glu Pro Glu Val Lys Glu Glu Lys Val Lys Glu	
129 134 139 144	
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Glu Val Met Asp Trp Ser Glu Val Lys Glu Glu Lys Asp Asn Leu Glu	
145 150 155 160	
ata aaa cag gag gag aag ttt gtt ggt caa tgc ata aaa gag gaa ttg	528
Ile Lys Gln Glu Glu Lys Phe Val Gly Gln Cys Ile Lys Glu Glu Leu	
161 166 171 176	
atg cat gga gag tgt gta aaa gaa gag aag gat ttc ctg aag aaa gaa	576
Met His Gly Glu Cys Val Lys Glu Glu Lys Asp Phe Leu Lys Lys Glu	
177 182 187 192	
atc gtg gat gat aca aag gtg aaa gaa gag cct ccg ata aat cac ccg	624

Ile Val Asp Asp Thr Lys Val Lys Glu Glu Pro Pro Ile Asn His Pro	
193 198 203 208	

gtg ggc tgc aag cgg aaa ctg gcc atg tca agg tgt gag act tgt ggt	672
Val Gly Cys Lys Arg Lys Leu Ala Met Ser Arg Cys Glu Thr Cys Gly	
209 214 219 224	

aca gaa gaa gca aag tac aga tgt cca cgt tgt atg cga tat tcc tgc	720
Thr Glu Glu Ala Lys Tyr Arg Cys Pro Arg Cys Met Arg Tyr Ser Cys	
225 230 235 240	

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Ser Leu Pro Cys Val Lys Lys His Lys Ala Glu Leu Thr Cys Asn Gly	
241 246 251 256	

gtt cga gat aaa act gca tac att tca ata caa cag ttt act gaa atg	816
Val Arg Asp Lys Thr Ala Tyr Ile Ser Ile Gln Gln Phe Thr Glu Met	
257 262 267 272	

aat ctc cta agt gat tat cga ttt ttg gaa gat gtg gca aga aca gcg	864
Asn Leu Leu Ser Asp Tyr Arg Phe Leu Glu Asp Val Ala Arg Thr Ala	
273 278 283 288	

gac cat att tct aga gat gct ttt ttg aag aga cca ata agc aat aaa	912
Asp His Ile Ser Arg Asp Ala Phe Leu Lys Arg Pro Ile Ser Asn Lys	
289 294 299 304	

tat atg tac ttt atg aaa aat cgt gcc cgg agg caa ggt att aac tta	960
Tyr Met Tyr Phe Met Lys Asn Arg Ala Arg Arg Gln Gly Ile Asn Leu	
305 310 315 320	

aaa ctt cta ccc aat gga ttc acc aag agg aag gag aat tca acc ttt	1008
Lys Leu Leu Pro Asn Gly Phe Thr Lys Arg Lys Glu Asn Ser Thr Phe	
321 326 331 336	

ttt gat aag aaa aaa caa cag ttt tgt tgg cat gtg aag ctc cag ttt	1056
Phe Asp Lys Lys Lys Gln Gln Phe Cys Trp His Val Lys Leu Gln Phe	
337 342 347 352	

cct caa agt caa gct gag tac ata gaa aaa aga gta cca gat gat aaa	1104
Pro Gln Ser Gln Ala Glu Tyr Ile Glu Lys Arg Val Pro Asp Asp Lys	
353 358 363 368	

act att aat gaa atc cta aaa cct tac att gat cct gaa aag tct gat	1152
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369 374 379 384	

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Tyr Tyr Glu Leu Asp Pro Tyr Lys Ser Leu Leu Asp Asn Leu Arg Asn	



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Arg Gly Val Leu Gln Lys Leu Ile His His Arg Lys Glu Thr Leu Ser	
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Ser Asp His His Leu Asp Ala Ala Ala Ala Arg Gln Pro Asn Gly Val	
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Cys Arg Ala Gly Phe Glu Arg Gln His Ser Leu Pro Ser Ser Glu His	
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Ile Pro Pro Gln Pro Arg Arg Ala Ala Pro Thr Thr Pro Pro Pro Pro	
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Val Lys Arg Arg Asp Arg Glu Ala Leu Met Ala Ser Gly Ser Gly Gly	
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Ser Ala Pro Glu Pro Pro Ala Glu Glu Glu Val Ala Thr Gly Thr Thr	
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Thr Glu Glu Lys Ala Ala Ala Glu Ala Ala Val Pro Arg Thr Ile Gly	
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Val Pro Ala Ser Ser Pro Val Met Glu Gln Val Leu Leu Ser Leu Val	
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Cys Val Asn Leu Leu Leu Ala Leu Asn Leu His Leu Pro Ala Ala Asp	
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Ala Ile Val Arg Thr Thr Pro Tyr Leu Gln His Arg His Arg Leu Pro	
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 Met Leu Lys Ser Met  
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 Val Leu Trp Leu Gly Glu Gln Val Gln Ser Leu Gln Leu Gln Gln Gln  
 6 11 16 21  
 ttg cgt cat cat ttt aat cac att cat att tgc gta act aac tca gaa 211  
 Leu Arg His His Phe Asn His Ile His Ile Cys Val Thr Asn Ser Glu  
 22 27 32 37  
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 Tyr Asn Gln Ser Glu Tyr Pro Trp Asp Leu Val Lys Ala His Leu Gln  
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 Gly Ala Phe Thr Ser Asn Ile Thr Phe Asp Ile Ser Glu Leu Gln Asn  
 54 59 64 69  
 aaa att ctt gat tta aat agg cac act caa gaa ttt cag cct tct tta 355  
 Lys Ile Leu Asp Leu Asn Arg His Thr Gln Glu Phe Gln Pro Ser Leu  
 70 75 80 85  
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 Glu Asp Trp Thr Glu Phe Gln Glu Gly Leu Glu Ser Leu Asn Pro Trp  
 86 91 96 101



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Thr Tyr Leu Lys Tyr His Ser Asn Ile Leu Tyr Val Val Leu Gly Val	
102 107 112 117	
atg ttg ttt tgt ctc tgt ctt ctg ttt ata gtc tgt aaa atc gga tgg	499
Met Leu Phe Cys Leu Cys Leu Leu Phe Ile Val Cys Lys Ile Gly Trp	
118 123 128 133	
acc gcc aat cgg aga atg aga gct gcc cag cct ggt ctt aca ttc ttt	547
Thr Ala Asn Arg Arg Met Arg Ala Ala Gln Pro Gly Leu Thr Phe Phe	
134 139 144 149	
caa tta att cat aaa cag ggg gat atg cag gga gcc gaa ggc cca tgg	595
Gln Leu Ile His Lys Gln Gly Asp Met Gln Gly Ala Glu Gly Pro Trp	
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Met Phe Met Phe Asn Trp Phe Thr Asp Cys Leu	
1 5	
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Trp Thr Leu Phe Leu Ser Asn Tyr Gln Pro Ser Val Glu Ser Ser Ser	
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Pro Gly Gly Ser Ala Thr Ser Asp Asp His Glu Phe Asp Pro Ser Ala	

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Asp Met Leu Val His Asp Phe Asp Asp Glu Arg Thr Leu Glu Glu Glu				
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Glu Met Met Glu Gly Glu Thr Asn Phe Ser Ser Glu Ile Glu Asp Leu				
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Ala Arg Glu Gly Asp Met Pro Ile His Glu Leu Leu Ser Leu Tyr Gly				
76	81	86	91	
tat ggt agt act gtt cga cta cct gaa gaa gat gag gaa gag gaa gaa				579
Tyr Gly Ser Thr Val Arg Leu Pro Glu Glu Asp Glu Glu Glu Glu Glu				
92	97	102	107	
gag gaa gaa gaa ggt gaa gat gat gaa gat gct gat aat gat gac aac				627
Glu Glu Glu Glu Gly Glu Asp Asp Glu Asp Ala Asp Asn Asp Asp Asn				
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Ser Gly Cys Ser Gly Glu Asn Lys Glu Glu Asn Ile Lys Asp Ser Ser				
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Gly Gln Glu Asp Glu Thr Gln Ser Ser Asn Asp Asp Pro Ser Gln Ser				
140	145	150	155	
gtt gct tct caa gat gcc cag gaa ata atc cgc cca cgt cga tgt aaa				771
Val Ala Ser Gln Asp Ala Gln Glu Ile Ile Arg Pro Arg Arg Cys Lys				
156	161	166	171	
tat ttt gat aca aat agt gaa gta gaa gaa gaa tct gaa gaa gat gaa				819
Tyr Phe Asp Thr Asn Ser Glu Val Glu Glu Glu Ser Glu Glu Asp Glu				
172	177	182	187	
gat tat att cca tca gaa gac tgg aaa aag gag att atg gtg ggc tcc				867
Asp Tyr Ile Pro Ser Glu Asp Trp Lys Lys Glu Ile Met Val Gly Ser				
188	193	198	203	
atg ttt caa gca gaa att cca gtt ggc att tgt aga tac aaa gaa aat				915
Met Phe Gln Ala Glu Ile Pro Val Gly Ile Cys Arg Tyr Lys Glu Asn				
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Glu Lys Val Tyr Glu Asn Asp Asp Gln Leu Leu Trp Asp Pro Glu Tyr				
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Leu Pro Glu Asp Lys Val Ile Ile Phe Leu Lys Asp Ala Ser Arg Arg				
236	241	246	251	
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Thr Gly Asp Glu Lys Gly Val Glu Ala Ile Pro Glu Gly Ser His Ile				
252	257	262	267	

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Lys Asp Asn Glu Gln Ala Leu Tyr Glu Leu Val Lys Cys Asn Phe Asp	
268 273 278 283	
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Pro Pro Thr Ala Ser Asn Ser Ser Asn Ser Gln Ser Glu Lys Glu Asp	
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Gly Thr Val Ser Thr Ala Asn Gln Asn Gly Lys Gln Pro Glu Lys His	
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gtc aac agt gac tgc gag acc tac atg tgc	gag gat gac ctg cgc atc	812		
Val Asn Ser Asp Cys Glu Thr Tyr Met Ser	Ala Asp Asp Leu Arg Ile			
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aac ctc tgg cac ctg gcc atc acc gac agg	agc ttc aac atc gtg gac	860		
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atc aag ccg gcc aac atg gag gac ctt acg	gag gtg atc aca gca tct	908		
Ile Lys Pro Ala Asn Met Glu Asp Leu Thr	Glu Val Ile Thr Ala Ser			
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Lys Phe Glu Cys Ala Trp Asn Gly Ser Asp	Ser Val Ile Met Thr Gly			
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373	378	383	388	

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taaacaccaa cttctcgaag cgtgccaggc tctgggctgg atgctgggga taagc	2537

<210> 389  
 <211> 2103  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (132)..(557)

<400> 389  
 gtgagggtccc gctccggaat tcccgggtcg acccacgcgt ccgcaaataa aagacacaag 60  
 ccaataaagc cagtgaagaaa ggagcttacc aaaggcagtg tacgaagaag gttcctggga 120  
 gactgtcaga a atg agt ttt tca ctg aac ttc acc ctg ccg gcg aac aca 170  
                   Met Ser Phe Ser Leu Asn Phe Thr Leu Pro Ala Asn Thr  
                           1                          5                          10  
 acg tcc tct cct gtc aca ggt ggg aaa gaa acg gac tgt ggg ccc tct 218  
 Thr Ser Ser Pro Val Thr Gly Gly Lys Glu Thr Asp Cys Gly Pro Ser  
           14                          19                          24                          29  
 ctt gga tta gcg gcg ggc ata cca ttg ctg gtg gcc aca gcc ctg ctg 266  
 Leu Gly Leu Ala Ala Gly Ile Pro Leu Leu Val Ala Thr Ala Leu Leu  
           30                          35                          40                          45  
 gtg gct tta cta ttt act ttg att cac cga aga aga agc agc att gag 314  
 Val Ala Leu Leu Phe Thr Leu Ile His Arg Arg Arg Ser Ser Ile Glu  
           46                          51                          56                          61  
 gcc atg gag gaa agt gac aga cca tgt gaa att tca gaa att gat gac 362  
 Ala Met Glu Glu Ser Asp Arg Pro Cys Glu Ile Ser Glu Ile Asp Asp  
           62                          67                          72                          77  
 aat ccc aag ata tct gag aat cct agg aga tca ccc aca cat gag aag 410  
 Asn Pro Lys Ile Ser Glu Asn Pro Arg Arg Ser Pro Thr His Glu Lys  
           78                          83                          88                          93  
 aat acg atg gga gca caa gag gcc cac ata tat gtg aag act gta gca 458  
 Asn Thr Met Gly Ala Gln Glu Ala His Ile Tyr Val Lys Thr Val Ala  
           94                          99                          104                          109  
 gga agc gag gaa cct gtg cat gac cgt tac cgt cct act ata gaa atg 506  
 Gly Ser Glu Glu Pro Val His Asp Arg Tyr Arg Pro Thr Ile Glu Met  
           110                          115                          120                          125  
 gaa aga agg agg gga ttg tgg tgg ctt gtg ccc aga ctg agc ctg gaa 554  
 Glu Arg Arg Arg Gly Leu Trp Trp Leu Val Pro Arg Leu Ser Leu Glu  
           126                          131                          136                          141  
 tga tgca gctcagtcaa ggagcagcag acctggcact ggaacagggt tgaaaaccca 611  
 \*  
 142  
 gggtttttgta cttggagagg aaagatgccca agctgcttct taatcaatcc aaatttcatt 671  
 tacagctctg gaacactttg gggctgattt gtctcttttag gggacatccc caacatgggt 731  
 aattccaact ctcagatctt gtgcttttagt tagtacatgt gactcaccag atgggggtcct 791  
 tagatcctat tcctgctccc agtggggaatt tgcttttctt tgtcattttg ggaaaggggc 851

ttgggtttctg agtgtottgc cttctcatct ttttttttca tctctttttt ctcaaaaaag	911
ccatcagatc tgacttttcat ggaagtgttg ctgaggtcag cctgggtgcaa gttgggatac	971
aaatgaaact tatgcaggat gtgtgagagg aagcagttaa ttgtttctga atatctcagg	1031
gtaggaacca tgtggagcca cacattccct gaccacaggg aagcacctgg ctcaatcatg	1091
tcacacagca gtggaaagaa tacggactct taagtcacac ctaccactga gcagctgtac	1151
gactttggag aagttgttta acattttcaa gcctcagttt ttgctttttt aaaggagggg	1211
aaatatttgc ctcatgtcat aattgaaaag attaaataag aaataaaggg aagtgtctgc	1271
tacttagttg ccagtcaaaa tgtagttct ctctctctac caccttcttc ctacctcttc	1331
ccatattgct tgcctgataa aacagctaata caccagcatt tgttcccat agtcacaggg	1391
ccacacaagg gaacatttag gacaaacttt ctccatggcc tatgatccaa attgttatct	1451
aaagatgatt ctaggtgttg ctggtagtat gtgaatcttc caatctaggt gtgatcgtgt	1511
cctcatatga atcaggaaaa ggcagtttct tacaagttcc gaattccaaa tacagagact	1571
ggtggtgtta catttaacct taaagatgtt aatggtgatg gaaattcatg tttcatatta	1631
aaacaacact ttgtctttac aatgaaacat ttgcttaata ttttaaagta agacattatg	1691
atacctctga tggcagttcc tcaaataact ttaacttttg tgctttaggg atagttgtta	1751
aagttacaac ttctttttatt ttatttttta aaggcttcag attaaacaag agcccttaag	1811
cccacgcata gcattgccgc ttcagcttgc tgaggactgt ctccaaggag gccaaatgga	1871
aaaggagagg ctacttcaag tgggtgttggc ccattgagcc tattgggcaa actataacca	1931
ggttgcccta ttttgggttg attactccag gagaggccac cctccagctt tctcttatcc	1991
cagtaactcc tcttccatt ttccaatcca tccccagcca tttttttttt tctctgtac	2051
tcttcttttg ccttcaatat gagtttcatt tcctctgtgt ctttgggcag ac	2103

<210> 390  
 <211> 1027  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (458) .. (901)

<400> 390  
 gctggcccat ggctgagacc tctctcccag agctgggggg agaggacaaa gccacgcctt 60





<210> 391  
 <211> 583  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (105)..(518)

<400> 391  
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 taggtgaccc tcggctgctg cagggatctg cagcgactgc agcc atg ggg gcg cac 116  
 Met Gly Ala His  
 1  
 ctg gtc cgg cgc tac ctg ggc gat gcc tgg gtg gag ccc gac ccc ctg 164  
 Leu Val Arg Arg Tyr Leu Gly Asp Ala Ser Val Glu Pro Asp Pro Leu  
 5 10 15 20  
 cag atg cca acc ttc ccg cca gac tac ggc ttc ccc gaa cgc aag gag 212  
 Gln Met Pro Thr Phe Pro Pro Asp Tyr Gly Phe Pro Glu Arg Lys Glu  
 21 26 31 36  
 cgc gag atg gtg gcc aca cag cag gag atg atg gac gcg cag ctg agg 260  
 Arg Glu Met Val Ala Thr Gln Gln Glu Met Met Asp Ala Gln Leu Arg  
 37 42 47 52  
 ctc cag ctg cgg gac tac tgc gcc cac cac ctc atc cgg ctg ctc aag 308  
 Leu Gln Leu Arg Asp Tyr Cys Ala His His Leu Ile Arg Leu Leu Lys  
 53 58 63 68  
 tgc aag cgt gac agc ttc ccc aac ttc ctg gcc tgc aag cag gag cgg 356  
 Cys Lys Arg Asp Ser Phe Pro Asn Phe Leu Ala Cys Lys Gln Glu Arg  
 69 74 79 84  
 cac gac tgg gac tac tgc gag cac cgc gac tat gtg atg cgc atg aag 404  
 His Asp Trp Asp Tyr Cys Glu His Arg Asp Tyr Val Met Arg Met Lys  
 85 90 95 100  
 gag ttt gag cgg gag cgg agg ctg ctc cag cgg aag aag cgg cgg gag 452  
 Glu Phe Glu Arg Glu Arg Arg Leu Leu Gln Arg Lys Lys Arg Arg Glu  
 101 106 111 116  
 aag aag gcg gca gag ttg gcc aaa ggc cag gga ccc ggg gaa gtg gac 500  
 Lys Lys Ala Ala Glu Leu Ala Lys Gly Gln Gly Pro Gly Glu Val Asp  
 117 122 127 132  
 ccc aag gtg gcc ctg tag ggggtg cccccccac cctatggacc agtcaaataa 554  
 Pro Lys Val Ala Leu \*  
 133 138  
 aagccttcag gcccctcaaa aaaaaaaaaa 583

<210> 392  
 <211> 535  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (105)..(470)

<400> 392  
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 taggtgaccc tcggctgctg cagggatctg cagcgactgc agcc atg ggg gcg cac 116  
 Met Gly Ala His  
 1  
 ctg gtc cgg cgc tac ctg ggc gat gcc tcg gtg gag ccc gac ccc ctg 164  
 Leu Val Arg Arg Tyr Leu Gly Asp Ala Ser Val Glu Pro Asp Pro Leu  
 5 10 15 20  
 cag atg cca acc ttc ccg cca gac tac ggc ttc ccc gaa cgc aag gag 212  
 Gln Met Pro Thr Phe Pro Pro Asp Tyr Gly Phe Pro Glu Arg Lys Glu  
 21 26 31 36  
 cgc gag atg gtg gcc aca cag cag gag atg atg gac gcg ctg ctc aag 260  
 Arg Glu Met Val Ala Thr Gln Gln Glu Met Met Asp Ala Leu Leu Lys  
 37 42 47 52  
 tgc aag cgt gac agc ttc ccc aac ttc ctg gcc tgc aag cag gag cgg 308  
 Cys Lys Arg Asp Ser Phe Pro Asn Phe Leu Ala Cys Lys Gln Glu Arg  
 53 58 63 68  
 cac gac tgg gac tac tgc gag cac cgc gac tat gtg atg cgc atg aag 356  
 His Asp Trp Asp Tyr Cys Glu His Arg Asp Tyr Val Met Arg Met Lys  
 69 74 79 84  
 gag ttt gag cgg gag cgg agg ctg ctc cag cgg aag aag cgg cgg gag 404  
 Glu Phe Glu Arg Glu Arg Arg Leu Leu Gln Arg Lys Lys Arg Arg Glu  
 85 90 95 100  
 aag aag gcg gca gag ttg gcc aaa ggc cag gga ccc ggg gaa gtg gac 452  
 Lys Lys Ala Ala Glu Leu Ala Lys Gly Gln Gly Pro Gly Glu Val Asp  
 101 106 111 116  
 ccc aag gtg gcc ctg tag ggggtg cccccccac cctatggacc agtcaaataa 506  
 Pro Lys Val Ala Leu \*  
 117 122  
 aagccttcag gccctcaaa aaaaaaaaaa 535

<210> 393  
 <211> 3897

<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (75)..(3800)

<400> 393  
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taagggaagc cgtg atg agg gcc gtg ttg acg tgg aga gat aaa gcc gag 110  
Met Arg Ala Val Leu Thr Trp Arg Asp Lys Ala Glu  
1 5 10  
cac tgt ata aat gac atc gca ttt aag cct gat gga act caa ctg att 158  
His Cys Ile Asn Asp Ile Ala Phe Lys Pro Asp Gly Thr Gln Leu Ile  
13 18 23 28  
ttg gct gcc gga agc aga tta ctg gtt tat gac acc tct gat ggc acc 206  
Leu Ala Ala Gly Ser Arg Leu Leu Val Tyr Asp Thr Ser Asp Gly Thr  
29 34 39 44  
tta ctt cag ccc ctg aag gga cac aaa gac act gtg tac tgt gtg gca 254  
Leu Leu Gln Pro Leu Lys Gly His Lys Asp Thr Val Tyr Cys Val Ala  
45 50 55 60  
tat gcg aag gat ggc aag cgc ttt gct tct gga tca gct gac aaa agc 302  
Tyr Ala Lys Asp Gly Lys Arg Phe Ala Ser Gly Ser Ala Asp Lys Ser  
61 66 71 76  
gtt att atc tgg aca tca aaa ctg gaa ggc att ctg aag tac acg cac 350  
Val Ile Ile Trp Thr Ser Lys Leu Glu Gly Ile Leu Lys Tyr Thr His  
77 82 87 92  
aat gat gct ata caa tgt gtc tcc tac aat cct att act cat caa ctg 398  
Asn Asp Ala Ile Gln Cys Val Ser Tyr Asn Pro Ile Thr His Gln Leu  
93 98 103 108  
gca tct tgt tcc tcc agt gac ttt ggg ttg tgg tct cct gaa cag aag 446  
Ala Ser Cys Ser Ser Ser Asp Phe Gly Leu Trp Ser Pro Glu Gln Lys  
109 114 119 124  
tct gtc tcc aaa cac aaa tca agc agc aag atc atc tgc tgc agc tgg 494  
Ser Val Ser Lys His Lys Ser Ser Ser Lys Ile Ile Cys Cys Ser Trp  
125 130 135 140  
aca aat gat ggt cag tac ctg gcg ctg ggg atg ttc aat ggg atc atc 542  
Thr Asn Asp Gly Gln Tyr Leu Ala Leu Gly Met Phe Asn Gly Ile Ile  
141 146 151 156  
agc ata cgg aac aaa aat ggc gag gag aaa gta aag atc gag cgg ccg 590  
Ser Ile Arg Asn Lys Asn Gly Glu Glu Lys Val Lys Ile Glu Arg Pro  
157 162 167 172  
ggg ggc tcc ctg tgc cca ata tgg tcc atc tgc tgg aac cct tca agc 638  
Gly Gly Ser Leu Ser Pro Ile Trp Ser Ile Cys Trp Asn Pro Ser Ser  
173 178 183 188

cga tgg gag agt ttc tgg atg aac aga gag aat gag gat gcc gag gat	686
Arg Trp Glu Ser Phe Trp Met Asn Arg Glu Asn Glu Asp Ala Glu Asp	
189 194 199 204	
gtc att gtc aac aga tat att cag gaa atc cct tcc act ctg aag tca	734
Val Ile Val Asn Arg Tyr Ile Gln Glu Ile Pro Ser Thr Leu Lys Ser	
205 210 215 220	
gca gtg tac agt agt cag ggt agt gag gca gag gag gaa gaa cca gag	782
Ala Val Tyr Ser Ser Gln Gly Ser Glu Ala Glu Glu Glu Glu Pro Glu	
221 226 231 236	
gaa gag gac gac agt ccc agg gac gac aac tta gag gaa cgt aat gac	830
Glu Glu Asp Asp Ser Pro Arg Asp Asp Asn Leu Glu Glu Arg Asn Asp	
237 242 247 252	
atc ctg gct gtg gct gac tgg gga cag aaa gtt tcc ttc tac cag ctg	878
Ile Leu Ala Val Ala Asp Trp Gly Gln Lys Val Ser Phe Tyr Gln Leu	
253 258 263 268	
agt gga aaa cag att gga aag gat cgg gca ctg aac ttt gac ccc tgc	926
Ser Gly Lys Gln Ile Gly Lys Asp Arg Ala Leu Asn Phe Asp Pro Cys	
269 274 279 284	
tgc atc agc tac ttt act aaa ggc gag tac att ttg ctg ggg ggt tca	974
Cys Ile Ser Tyr Phe Thr Lys Gly Glu Tyr Ile Leu Leu Gly Gly Ser	
285 290 295 300	
gac aag caa gta tct ctt ttc acc aag gat gga gtg cgg ctt ggg act	1022
Asp Lys Gln Val Ser Leu Phe Thr Lys Asp Gly Val Arg Leu Gly Thr	
301 306 311 316	
gtt ggg gag cag aac tcc tgg gtg tgg acg tgt caa gcg aaa ccg gat	1070
Val Gly Glu Gln Asn Ser Trp Val Trp Thr Cys Gln Ala Lys Pro Asp	
317 322 327 332	
tcc aac tat gtg gtg gtc ggc tgc cag gac ggc acc att tcc ttc tac	1118
Ser Asn Tyr Val Val Val Gly Cys Gln Asp Gly Thr Ile Ser Phe Tyr	
333 338 343 348	
cag ctt att ttc agc aca gtc cat ggg ctt tac aag gac cgc tat gcc	1166
Gln Leu Ile Phe Ser Thr Val His Gly Leu Tyr Lys Asp Arg Tyr Ala	
349 354 359 364	
tac agg gat agc atg act gac gtc att gtg cag cac ctg atc act gag	1214
Tyr Arg Asp Ser Met Thr Asp Val Ile Val Gln His Leu Ile Thr Glu	
365 370 375 380	
cag aaa gtt cgg att aaa tgc aaa gag ctt gtc aag aag att gcc atc	1262
Gln Lys Val Arg Ile Lys Cys Lys Glu Leu Val Lys Lys Ile Ala Ile	
381 386 391 396	
tac aga aat cga ttg gct atc caa ctg cca gag aaa atc ctc atc tat	1310
Tyr Arg Asn Arg Leu Ala Ile Gln Leu Pro Glu Lys Ile Leu Ile Tyr	
397 402 407 412	

gag ttg tat tca gag gac tta tca gac atg cat tac cgg gta aag gag	1358
Glu Leu Tyr Ser Glu Asp Leu Ser Asp Met His Tyr Arg Val Lys Glu	
413 418 423 428	
aag att atc aag aag ttt gag tgc aac ctc ctg gtg gtg tgt gcc aat	1406
Lys Ile Ile Lys Lys Phe Glu Cys Asn Leu Leu Val Val Cys Ala Asn	
429 434 439 444	
cac atc atc ctg tgc cag gag aaa cgg ctg cag tgc ctg tcc ttc agc	1454
His Ile Ile Leu Cys Gln Glu Lys Arg Leu Gln Cys Leu Ser Phe Ser	
445 450 455 460	
gga gtg aag gag cgg gag tgg cag atg gag tct ctc att cgt tac atc	1502
Gly Val Lys Glu Arg Glu Trp Gln Met Glu Ser Leu Ile Arg Tyr Ile	
461 466 471 476	
aag gtg atc ggt ggc cct cct gga aga gaa ggc ctc tta gtg ggg ctg	1550
Lys Val Ile Gly Gly Pro Pro Gly Arg Glu Gly Leu Leu Val Gly Leu	
477 482 487 492	
aag aat gga cag atc ctg aag atc ttc gtg gac aat ctc ttt gct atc	1598
Lys Asn Gly Gln Ile Leu Lys Ile Phe Val Asp Asn Leu Phe Ala Ile	
493 498 503 508	
gtc ctg ctg aag cag gcc aca gct gtg cgc tgc ttg gac atg agt gcc	1646
Val Leu Leu Lys Gln Ala Thr Ala Val Arg Cys Leu Asp Met Ser Ala	
509 514 519 524	
tcc cgt aag aag ctg gcc gtg gta gat gaa aat gac act tgc ctg gtg	1694
Ser Arg Lys Lys Leu Ala Val Val Asp Glu Asn Asp Thr Cys Leu Val	
525 530 535 540	
tat gac atc gac acc aag gag ctg ctt ttt cag gaa cca aac gcc aac	1742
Tyr Asp Ile Asp Thr Lys Glu Leu Leu Phe Gln Glu Pro Asn Ala Asn	
541 546 551 556	
agt gta gct tgg aac acc cag tgt gag gac atg ctc tgc ttc tcg gga	1790
Ser Val Ala Trp Asn Thr Gln Cys Glu Asp Met Leu Cys Phe Ser Gly	
557 562 567 572	
gga ggc tac ctc aac atc aaa gcc agc acc ttc cct gtg cac cgg cag	1838
Gly Gly Tyr Leu Asn Ile Lys Ala Ser Thr Phe Pro Val His Arg Gln	
573 578 583 588	
aag ctg cag ggc ttt gtg gtc ggc tac aat ggc tcc aag atc ttc tgc	1886
Lys Leu Gln Gly Phe Val Val Gly Tyr Asn Gly Ser Lys Ile Phe Cys	
589 594 599 604	
ctc cat gtc ttc tcc att tct gcc gtg gag gtg ccg cag tcc gct ccc	1934
Leu His Val Phe Ser Ile Ser Ala Val Glu Val Pro Gln Ser Ala Pro	
605 610 615 620	
atg tac cag tac ctg gat agg aaa ctg ttc aag gaa gcc tac cag att	1982
Met Tyr Gln Tyr Leu Asp Arg Lys Leu Phe Lys Glu Ala Tyr Gln Ile	
621 626 631 636	
gct tgc ttg ggt gtc aca gac act gat tgg cgt gaa ctg gcc atg gaa	2030

Ala Cys Leu Gly Val Thr Asp Thr Asp Trp Arg Glu Leu Ala Met Glu	637	642	647	652	
gcg cta gaa ggt tta gat ttt gaa aca gca aag aag gcc ttc atc aga					2078
Ala Leu Glu Gly Leu Asp Phe Glu Thr Ala Lys Lys Ala Phe Ile Arg	653	658	663	668	
gta caa gac ctc cga tat tta gag ctc atc agc agc att gag gag agg					2126
Val Gln Asp Leu Arg Tyr Leu Glu Leu Ile Ser Ser Ile Glu Glu Arg	669	674	679	684	
aag aag cgg gga gag acc aac aat gac ctg ttt ctg gca gat gtg ttt					2174
Lys Lys Arg Gly Glu Thr Asn Asn Asp Leu Phe Leu Ala Asp Val Phe	685	690	695	700	
tcc tac cag ggg aag ttc cat gag gcc gcc aaa ctg tac aag agg agt					2222
Ser Tyr Gln Gly Lys Phe His Glu Ala Ala Lys Leu Tyr Lys Arg Ser	701	706	711	716	
ggg cac gag aac ctc gcg ctt gaa atg tac acc gac ctc tgc atg ttt					2270
Gly His Glu Asn Leu Ala Leu Glu Met Tyr Thr Asp Leu Cys Met Phe	717	722	727	732	
gag tat gcc aag gat ttc ctt gga tct gga gac ccc aaa gaa aca aag					2318
Glu Tyr Ala Lys Asp Phe Leu Gly Ser Gly Asp Pro Lys Glu Thr Lys	733	738	743	748	
atg cta atc acc aaa cag gct gac tgg gcc aga aat atc aag gag ccc					2366
Met Leu Ile Thr Lys Gln Ala Asp Trp Ala Arg Asn Ile Lys Glu Pro	749	754	759	764	
aaa gcc gcc gtg gag atg tac atc tca gca gga gag cac gtc aag gcc					2414
Lys Ala Ala Val Glu Met Tyr Ile Ser Ala Gly Glu His Val Lys Ala	765	770	775	780	
atc gag atc tgt ggt gac cat ggc tgg gtt gac atg ttg atc gac atc					2462
Ile Glu Ile Cys Gly Asp His Gly Trp Val Asp Met Leu Ile Asp Ile	781	786	791	796	
gcc cgc aaa ctg gac aag gct gag cgc gag ccc ctg ctg ctg tgc gct					2510
Ala Arg Lys Leu Asp Lys Ala Glu Arg Glu Pro Leu Leu Leu Cys Ala	797	802	807	812	
acc tac ctc aag aag ctg gac agc cct ggc tat gct gct gag acc tac					2558
Thr Tyr Leu Lys Lys Leu Asp Ser Pro Gly Tyr Ala Ala Glu Thr Tyr	813	818	823	828	
ctg aag atg ggt gac ctc aag tcc ctg gtg cag ctg cac gtg gag acc					2606
Leu Lys Met Gly Asp Leu Lys Ser Leu Val Gln Leu His Val Glu Thr	829	834	839	844	
cag cgc tgg gat gag gcc ttt gct ttg ggt gag aag cat cct gag ttt					2654
Gln Arg Trp Asp Glu Ala Phe Ala Leu Gly Glu Lys His Pro Glu Phe	845	850	855	860	
aag gat gac atc tac atg ccg tat gct cag tgg cta gca gag aac gat					2702
Lys Asp Asp Ile Tyr Met Pro Tyr Ala Gln Trp Leu Ala Glu Asn Asp					

861	866	871	876	
cgc ttt gag gaa gcc	cag aaa gcg ttc cac	aag gct ggg cga cag	aga	2750
Arg Phe Glu Glu Ala	Gln Lys Ala Phe His	Lys Ala Gly Arg Gln	Arg	
877	882	887	892	
gaa gcg gtc cag gtg	ctg gag cag ctc aca	aac aat gcc gtg gcg	gag	2798
Glu Ala Val Gln Val	Leu Glu Gln Leu Thr	Asn Asn Ala Val Ala	Glu	
893	898	903	908	
agc agg ttt aat gat	gct gcc tat tat tac	tgg atg ctg tcc atg	cag	2846
Ser Arg Phe Asn Asp	Ala Ala Tyr Tyr Tyr	Trp Met Leu Ser Met	Gln	
909	914	919	924	
tgc ctc gat ata gct	caa gat cct gcc cag	aag gac aca atg ctt	ggc	2894
Cys Leu Asp Ile Ala	Gln Asp Pro Ala Gln	Lys Asp Thr Met Leu	Gly	
925	930	935	940	
aag ttc tac cac ttc	cag cgt ttg gca gag	ctg tac cat ggt tac	cat	2942
Lys Phe Tyr His Phe	Gln Arg Leu Ala Glu	Leu Tyr His Gly Tyr	His	
941	946	951	956	
gcc atc cat cgc cac	acg gaa gat ccg ttc	agt gtc cat cgt cct	gaa	2990
Ala Ile His Arg His	Thr Glu Asp Pro Phe	Ser Val His Arg Pro	Glu	
957	962	967	972	
act ctt ttc aac atc	tcc agg ttc ctg ctg	cac agc ctg ccc aag	gac	3038
Thr Leu Phe Asn Ile	Ser Arg Phe Leu Leu	His Ser Leu Pro Lys	Asp	
973	978	983	988	
acc ccc tcg ggc atc	tct aaa gtg aaa ata	ctc ttc acc ttg gcc	aag	3086
Thr Pro Ser Gly Ile	Ser Lys Val Lys Ile	Leu Phe Thr Leu Ala	Lys	
989	994	999	1004	
cag agc aag gcc ctc	ggt gcc tac agg ctg	gcc cgg cac gcc tat	gac	3134
Gln Ser Lys Ala Leu	Gly Ala Tyr Arg Leu	Ala Arg His Ala Tyr	Asp	
1005	1010	1015	1020	
aag ctg cgt ggc ctg	tac atc cct gcc aga	ttc caa aag tcc att	gag	3182
Lys Leu Arg Gly Leu	Tyr Ile Pro Ala Arg	Phe Gln Lys Ser Ile	Glu	
1021	1026	1031	1036	
ctg ggt acc ctg acc	atc cgc gcc aag ccc	ttc cac gac agt gag	gag	3230
Leu Gly Thr Leu Thr	Ile Arg Ala Lys Pro	Phe His Asp Ser Glu	Glu	
1037	1042	1047	1052	
ttg gtg ccc ttg tgc	tac cgc tgc tcc acc	aac aac ccg ctg ctc	aac	3278
Leu Val Pro Leu Cys	Tyr Arg Cys Ser Thr	Asn Asn Pro Leu Leu	Asn	
1053	1058	1063	1068	
aac ctg ggc aac gtc	tgc atc aac tgc cgc	cag ccc ttc atc ttc	tcc	3326
Asn Leu Gly Asn Val	Cys Ile Asn Cys Arg	Gln Pro Phe Ile Phe	Ser	
1069	1074	1079	1084	
gcc tct tcc tac gac	gtg cta cac ctg gtt	gag ttc tac ctg gag	gaa	3374
Ala Ser Ser Tyr Asp	Val Leu His Leu Val	Glu Phe Tyr Leu Glu	Glu	
1085	1090	1095	1100	



ggg atc act gat gaa gaa gcc atc tcc ctc atc gac ctg gag gtg ctg	3422
Gly Ile Thr Asp Glu Glu Ala Ile Ser Leu Ile Asp Leu Glu Val Leu	
1101 1106 1111 1116	
aga ccc aag cgg gat gac aga cag cta gag att gca aac aac agc tcc	3470
Arg Pro Lys Arg Asp Asp Arg Gln Leu Glu Ile Ala Asn Asn Ser Ser	
1117 1122 1127 1132	
cag att ctg cgg cta gtg gag acc aag gac tcc atc gga gat gag gac	3518
Gln Ile Leu Arg Leu Val Glu Thr Lys Asp Ser Ile Gly Asp Glu Asp	
1133 1138 1143 1148	
ccg ttc aca gct aag ctg agc ttt gag caa ggt ggc tca gag ttc gtg	3566
Pro Phe Thr Ala Lys Leu Ser Phe Glu Gln Gly Gly Ser Glu Phe Val	
1149 1154 1159 1164	
cca gtg gtg gtg agc cgg ctg gtg ctg cgc tcc atg agc cgc cgg gat	3614
Pro Val Val Val Ser Arg Leu Val Leu Arg Ser Met Ser Arg Arg Asp	
1165 1170 1175 1180	
gtc ctc atc aag cga tgg ccc cca ccc ctg agg tgg caa tac ttc cgc	3662
Val Leu Ile Lys Arg Trp Pro Pro Pro Leu Arg Trp Gln Tyr Phe Arg	
1181 1186 1191 1196	
tca ctg ctg cct gac gcc tcc att acc atg tgc ccc tcc tgc ttc cag	3710
Ser Leu Leu Pro Asp Ala Ser Ile Thr Met Cys Pro Ser Cys Phe Gln	
1197 1202 1207 1212	
atg ttc cat tct gag gac tat gag ttg ctg gtg ctt cag cat ggc tgc	3758
Met Phe His Ser Glu Asp Tyr Glu Leu Leu Val Leu Gln His Gly Cys	
1213 1218 1223 1228	
tgc ccc tac tgc cgc agg tgc aag gat gac cct ggc cca tga ccagcat	3807
Cys Pro Tyr Cys Arg Arg Cys Lys Asp Asp Pro Gly Pro *	
1229 1234 1239	
cctggggacg gcctgcaccc tctgcccgcc ttgggggtctg ctgggctgtg aaggagaata	3867
aagagttaaa ctgtcaaaaa aaaaaaaaaa	3897

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 <211> 1802  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (87)..(1139)

<400> 394	
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ccggcaggca agcgtttgcc tccgcc atg aac ccc agg ggc ctg ttc cag gac	113

Met Asn Pro Arg Gly Leu Phe Gln Asp  
1 5

ttc aac ccc agt aag gtt ctc atc tac acc tgc ctg ctg ctc ttc tcg	161
Phe Asn Pro Ser Lys Val Leu Ile Tyr Thr Cys Leu Leu Leu Phe Ser	
10 15 20 25	
ggg ctg ctg ccc ctc cgc ctg gac ggc atc atc caa tgg agc tac tgg	209
Gly Leu Leu Pro Leu Arg Leu Asp Gly Ile Ile Gln Trp Ser Tyr Trp	
26 31 36 41	
gcc gtc ttt gcc ccc ata tgg ctg agg aag ctt cta gtc gtc gca ggc	257
Ala Val Phe Ala Pro Ile Trp Leu Arg Lys Leu Leu Val Val Ala Gly	
42 47 52 57	
gcc tcc gtg ggc gcg ggc gtt tgg gcc cgc aac cct cgc tac cgc acc	305
Ala Ser Val Gly Ala Gly Val Trp Ala Arg Asn Pro Arg Tyr Arg Thr	
58 63 68 73	
gag gga gag gcc tgt gtg gag atc aaa gcc atg ctg atc gct gtg ggc	353
Glu Gly Glu Ala Cys Val Glu Ile Lys Ala Met Leu Ile Ala Val Gly	
74 79 84 89	
atc cac ctg ctg ctg ctc atg ttc gaa gtc ctg gtc tgc gac agg gtg	401
Ile His Leu Leu Leu Leu Met Phe Glu Val Leu Val Cys Asp Arg Val	
90 95 100 105	
gag agg ggc acc cac ttc tgg ctg ctg gtc ttc atg cct ctc ttc ttc	449
Glu Arg Gly Thr His Phe Trp Leu Leu Val Phe Met Pro Leu Phe Phe	
106 111 116 121	
gtg tcc ccc gtg tcc gtg gct gcc tgc gtc tgg ggc ttt cga cac gat	497
Val Ser Pro Val Ser Val Ala Ala Cys Val Trp Gly Phe Arg His Asp	
122 127 132 137	
agg tcg ctg gag ctg gag atc ctg tgc tcg gtc aac atc ctg cag ttc	545
Arg Ser Leu Glu Leu Glu Ile Leu Cys Ser Val Asn Ile Leu Gln Phe	
138 143 148 153	
atc ttc atc gcc cta aag ctg gac agg att att cac tgg ccg tgg ctg	593
Ile Phe Ile Ala Leu Lys Leu Asp Arg Ile Ile His Trp Pro Trp Leu	
154 159 164 169	
gtg gtg ttt gtg ccc ctg tgg atc ctc atg tcg ttc ctt tgc ctg gtc	641
Val Val Phe Val Pro Leu Trp Ile Leu Met Ser Phe Leu Cys Leu Val	
170 175 180 185	
gtc ctc tat tac atc gtc tgg tcc ctc ctg ttc ctg cgg tcc ctg gat	689
Val Leu Tyr Tyr Ile Val Trp Ser Leu Leu Phe Leu Arg Ser Leu Asp	
186 191 196 201	
gtg gtt gcc gag cag cgg aga aca cac gtg acc atg gct atc agt tgg	737
Val Val Ala Glu Gln Arg Arg Thr His Val Thr Met Ala Ile Ser Trp	
202 207 212 217	
ata acg att gtc gtg cct ctg ctc act ttt gag gtc ctg ctg gtt cac	785
Ile Thr Ile Val Val Pro Leu Leu Thr Phe Glu Val Leu Leu Val His	

218	223	228	233	
aga ttg gat ggc cac	aat aca ttc tcc tac	gtc tcc ata ttt gtc	ccc	833
Arg Leu Asp Gly His	Asn Thr Phe Ser Tyr	Val Ser Ile Phe Val	Pro	
234	239	244	249	
ctt tgg ctt tcc tta	cta act tta atg gcc	aca aca ttt agg cga	aag	881
Leu Trp Leu Ser Leu	Leu Thr Leu Met Ala	Thr Thr Phe Arg Arg	Lys	
250	255	260	265	
ggg ggc aat cat tgg	tgg ttt ggc att cgc	aga gac ttc tgt cag	ttt	929
Gly Gly Asn His Trp	Trp Phe Gly Ile Arg	Arg Asp Phe Cys Gln	Phe	
266	271	276	281	
ctg ctt gaa att ttc	cca ttt tta aga gaa	tat ggg aac att tca	tat	977
Leu Leu Glu Ile Phe	Pro Phe Leu Arg Glu	Tyr Gly Asn Ile Ser	Tyr	
282	287	292	297	
gat ctg cat cac gaa	gat agt gaa gat gct	gaa gaa aca tca gtt	cca	1025
Asp Leu His His Glu	Asp Ser Glu Asp Ala	Glu Glu Thr Ser Val	Pro	
298	303	308	313	
gaa gct ccg aaa att	gct cca ata ttt gga	aag aag gcc aga gta	gtt	1073
Glu Ala Pro Lys Ile	Ala Pro Ile Phe Gly	Lys Lys Ala Arg Val	Val	
314	319	324	329	
ata acc cag agc cct	ggg aaa tac gtt ccc	ccc cct ccc aag tta	aat	1121
Ile Thr Gln Ser Pro	Gly Lys Tyr Val Pro	Pro Pro Pro Lys Leu	Asn	
330	335	340	345	
att gat atg cca gat	tta actcct agagaggacc	caggcacaca cagactccac		1175
Ile Asp Met Pro Asp	*			
346	351			
ttggccttcg cctcttggtc	attcatccca aacctggaaa	tggaaacagg cttcaaacac		1235
tcgtctcagc ccgtgtttga	gatcaccgcc tcatcagtat	gcatcataga tggaggtggt		1295
ttcagtatgt ggggtgtgtg	gggtgtgtacc tgggtaagag	acttgctttc cagggttcgca		1355
ctttcaggtg tagctggggg	cagtaagtgc aattgtttta	gtaggtcctc aaaaggaata		1415
accacacagc tgtttggtta	aatgctactg tacctatcaa	aactattggt taaaaagtat		1475
ttttatacac tgctaactta	aaattgtatt tcagattgtg	cctgtcataa caatagcaaa		1535
tgtaaaaagt tctctttccc	accacttggt tataaacctc	atagttgata tttttagtg		1595
tcctactggt aaaatactct	ctccttgggc tttgctgata	ctggctctta atattctgat		1655
aggtgaatth ttctaattga	atgaacccat gcatatatag	tatttatatg aatattttag		1715
cagtgaata tgttgaattc	tagttctctg cattaccatt	attacgttaa agtatttttt		1775
aaagcttagg tgtgaaaaaa	aaaaaaa			1802

<210> 395  
 <211> 1413  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (21) .. (740)

<400> 395  
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 Met Thr Cys Phe Gly Pro Tyr Pro Ile Gly  
 1 5

act gga ctt cag gga ata acc ttg tgt tat agt tgt ttt ccc tcc ttc 98  
 Thr Gly Leu Gln Gly Ile Thr Leu Cys Tyr Ser Cys Phe Pro Ser Phe  
 11 16 21 26

tgc aag atg aaa agc agg atg tgc atg gct atc agc att tgt cag acg 146  
 Cys Lys Met Lys Ser Arg Met Cys Met Ala Ile Ser Ile Cys Gln Thr  
 27 32 37 42

ctt tcc atg ttg agt ttt gtg gtc tgt gct ttc agg tac agg cat atg 194  
 Leu Ser Met Leu Ser Phe Val Val Cys Ala Phe Arg Tyr Arg His Met  
 43 48 53 58

ttc aaa agg ggt tgg cca atg ggt aca tgt tgt ttg ttt ctg ccc aca 242  
 Phe Lys Arg Gly Trp Pro Met Gly Thr Cys Cys Leu Phe Leu Pro Thr  
 59 64 69 74

gct gcc cca gtg ctc agc tgt gaa gct gca aca cag act gaa agg aga 290  
 Ala Ala Pro Val Leu Ser Cys Glu Ala Ala Thr Gln Thr Glu Arg Arg  
 75 80 85 90

ctg gat ctg gct gca gtg act ctg agg aga ggc ttg aga tct aga gct 338  
 Leu Asp Leu Ala Ala Val Thr Leu Arg Arg Gly Leu Arg Ser Arg Ala  
 91 96 101 106

tcg cga tgc aga ccg cgg tct ttg ata gat tac aaa tcc tac atg gac 386  
 Ser Arg Cys Arg Pro Arg Ser Leu Ile Asp Tyr Lys Ser Tyr Met Asp  
 107 112 117 122

acc aag ctg ctg gtg gcg agg ttc ctg gag cag tcc tct tgt acc atg 434  
 Thr Lys Leu Leu Val Ala Arg Phe Leu Glu Gln Ser Ser Cys Thr Met  
 123 128 133 138

acc cca gac atc cat gaa ctt gta gaa aac att aaa tct gtt ttg aaa 482  
 Thr Pro Asp Ile His Glu Leu Val Glu Asn Ile Lys Ser Val Leu Lys  
 139 144 149 154

tct gat gag gag cac atg gag gaa gcc atc aca agt gcc agt ttt cta 530  
 Ser Asp Glu Glu His Met Glu Glu Ala Ile Thr Ser Ala Ser Phe Leu  
 155 160 165 170

gaa cag ata atg gcc cca ttg cag ccc agc aca tcc agg gcc cac aag 578

Glu	Gln	Ile	Met	Ala	Pro	Leu	Gln	Pro	Ser	Thr	Ser	Arg	Ala	His	Lys	
171					176					181					186	
ctg	ccc	ttg	cgg	aga	cag	cct	ggc	ctg	ctg	cac	ctc	cag	agc	tgc	ggc	626
Leu	Pro	Leu	Arg	Arg	Gln	Pro	Gly	Leu	Leu	His	Leu	Gln	Ser	Cys	Gly	
187					192					197					202	
gac	ctt	cac	acc	atc	aca	cca	gcg	ggg	agg	ccc	cga	gcc	gag	agg	agg	674
Asp	Leu	His	Thr	Ile	Thr	Pro	Ala	Gly	Arg	Pro	Arg	Ala	Glu	Arg	Arg	
203					208					213					218	
ccc	cgg	cga	gtg	gag	gct	gag	cgg	tca	cac	agc	ctc	att	ggg	gtc	atc	722
Pro	Arg	Arg	Val	Glu	Ala	Glu	Arg	Ser	His	Ser	Leu	Ile	Gly	Val	Ile	
219					224					229					234	
cga	gag	act	gtc	ctg	tga	accctg	gaagacagaa	ggtcactcca	aggggaagga							776
Arg	Glu	Thr	Val	Leu	*											
235					240											
tccctctcct	ctctgtcatg	tcttggatgg	gagctgtggc	ccacctcaaa	aaaaaaggag											836
cactctggac	acgtgttccc	acctgttggg	tcccggtgtct	gctgactgag	ggcattcagg											896
agtaaattgca	caggctcggtc	caggcccgctc	tgggttttggg	atgcactgag	ttggagggtta											956
tgaaagcttt	gacccctcttc	ttccctctgct	gggcctcgca	gcattcccaa	gggtcacatg											1016
ccctggcatg	ggcagaaaact	gggctaataga	ttcttttgccc	acttcacccc	tctgtgtctct											1076
ctttgttgct	aagttctttc	cctcttggaa	ggacagatct	gccgggctgc	tatttatagt											1136
tgccctttggc	ctttcactgc	tctgcgattt	ggcaggaaat	aaggcgatta	accctatgtg											1196
tccacaagcc	tcaagccttg	tttcagggtca	ccctcaaatac	acactctctt	taggcaaaac											1256
aggaaacttc	ttaagtgaca	aattttaatg	ccagacattt	aaggagagga	ttattgttga											1316
ttccatttac	tcatgcttgc	aaaactagag	accctaagg	cagaactgag	aataaacatg											1376
tttacttttg	gccactgggc	ttgatgtgta	aaaaaaa													1413

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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (338) ..(1051)

<400> 396	
atcgagaatc actagtccag tgcggtggaa ttccgataac acaagtcagt acaacgtcct	60
tgaggacgtt tgggacaaag gtatagtcaa agtgatcaga gcattacatt catctgacaa	120

gtcttgtctc tcttcagccc ctctctctct taattgacta ctccatcttc gctccttgga 180  
acatcctttc attggtcagc cacatttttc ctgcttgagg catccatccc catctatttg 240  
tcatacccca tgaaacttaa cctcattatg gtttgcattc tggattctcc tctccaccat 300  
ctggcctttac cttgggggtg gtgtcgtaca tgacaca atg acg tgt ttc ggg cca 355  
Met Thr Cys Phe Gly Pro  
1  
tat cct att gga act gga ctt cag gga ata acc ttg tgt tgt ttt ccc 403  
Tyr Pro Ile Gly Thr Gly Leu Gln Gly Ile Thr Leu Cys Cys Phe Pro  
7 12 17 22  
tcc ttc tgc aag atg aaa agc agg atg tgc atg gct atc agc att tgt 451  
Ser Phe Cys Lys Met Lys Ser Arg Met Cys Met Ala Ile Ser Ile Cys  
23 28 33 38  
cag atg ctt tcc atg ttg agt ttt gtg gtc tgt gct ttc agg tac agg 499  
Gln Met Leu Ser Met Leu Ser Phe Val Val Cys Ala Phe Arg Tyr Arg  
39 44 49 54  
cat atg ttc aaa agg ggc tgg cca atg ggt aca tgt tgt ttg ttt ctg 547  
His Met Phe Lys Arg Gly Trp Pro Met Gly Thr Cys Cys Leu Phe Leu  
55 60 65 70  
ccc aca gct gcc cca gtg ctc agc tgt gaa gct gca aca cag act gaa 595  
Pro Thr Ala Ala Pro Val Leu Ser Cys Glu Ala Ala Thr Gln Thr Glu  
71 76 81 86  
agg aga ctg gat ctg gct gca gtg act ctg agg aga ggc ttg aga tct 643  
Arg Arg Leu Asp Leu Ala Ala Val Thr Leu Arg Arg Gly Leu Arg Ser  
87 92 97 102  
aga gct tcg cga tgc aga ccg cgg tct ttg ata gat tac aaa tcc tac 691  
Arg Ala Ser Arg Cys Arg Pro Arg Ser Leu Ile Asp Tyr Lys Ser Tyr  
103 108 113 118  
atg gac acc aag ctg ctg gtg gcg agg ttc ctg gag cag tcc tct tgt 739  
Met Asp Thr Lys Leu Leu Val Ala Arg Phe Leu Glu Gln Ser Ser Cys  
119 124 129 134  
acc atg acc cca gac atc cat gaa ctt gta gaa aac att aaa tct gtt 787  
Thr Met Thr Pro Asp Ile His Glu Leu Val Glu Asn Ile Lys Ser Val  
135 140 145 150  
ttg aaa tct gat gag gag cac atg gag gaa gcc atc aca agt gcc agt 835  
Leu Lys Ser Asp Glu Glu His Met Glu Glu Ala Ile Thr Ser Ala Ser  
151 156 161 166  
ttt cta gaa cag ata atg gcc cca ttg cag ccc agc aca tcc agg gcc 883  
Phe Leu Glu Gln Ile Met Ala Pro Leu Gln Pro Ser Thr Ser Arg Ala  
167 172 177 182  
cac aag ctg ccc tcg cgg aga cag cct ggc ctg ctg cac ctc cag agc 931  
His Lys Leu Pro Ser Arg Arg Gln Pro Gly Leu Leu His Leu Gln Ser

183	188	193	198	
tgc ggc gac ctt cac acc ttc aca cca gcg ggg agg ccc cga gcc gag				979
Cys Gly Asp Leu His Thr Phe Thr Pro Ala Gly Arg Pro Arg Ala Glu				
199	204	209	214	
agg agg ccc cgg cga gtg gag gct gag cgg cca cac agc ctc att ggg				1027
Arg Arg Pro Arg Arg Val Glu Ala Glu Arg Pro His Ser Leu Ile Gly				
215	220	225	230	
gtc atc cga gag act gtc ctg tga accctggaag acagaaggcc actccaaggg				1081
Val Ile Arg Glu Thr Val Leu *				
231	236			
gaaggatccc tctcctctct gccatttctt ggctgggagc tgtggtccac ctcaaaaaa				1141
aggagcactc tggaggacac gttttccac ctgttggtc ccgtgtctgc tgactgaggg				1201
cattcaggag taaatgcaca ggtcgggtcca ggcccgtctg ggtttgggat gcactgagtt				1261
ggagggttatg aaagctttga tctctctctt cctctgctgg gcctcgcagc attcccaagg				1321
gtcacatgcc ctggcatggg cagaaactgg gctaattgatt ctttgccac ttcacccctc				1381
gtgtctctct ttgttgctaa gttctttccc tcttggaagg acagatctgc cgggctgcta				1441
tttatagttg cctttggcct ttcactgctc tgcgatttgg caggaaataa ggcgattaac				1501
cctatgtgtc cacaagcctc aagccttggt tcaggtcacc ctcaaatac actctcttta				1561
ggcaaaacag gaaacttctt aagtgcacaa ttttaatgcc agacatttaa ggagaggatt				1621
attgttgatt ccatttactc atgcttgcaa aactagagac ccctaaggca gaactgagaa				1681
taaacatggt tactttgggc caaaaaaaaa				1711
<210> 397				
<211> 453				
<212> DNA				
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<220>				
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<222> (90)..(407)				
<400> 397				
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gcagtgtttt gccttcaccc caagtgacc atg aga ggt gcc acg cga gtc tca				113
	Met	Arg	Gly	Ala
	1		5	Thr
				Arg
				Val
				Ser
atc atg ctc ctc cta gta act gtg tot gac tgt gct gtg atc aca ggg				161
Ile Met Leu Leu Leu Val Thr Val Ser Asp Cys Ala Val Ile Thr Gly				

9	14	19	24	
gcc tgt gag cgg gat gtc cag tgt ggg gca ggc acc tgc tgt gcc atc				209
Ala Cys Glu Arg Asp Val Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile				
25	30	35	40	
agc ctg tgg ctt cga ggg ctg cgg atg tgc acc ccg ctg ggg cgg gaa				257
Ser Leu Trp Leu Arg Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu				
41	46	51	56	
ggc gag gag tgc cac ccc ggc agc cac aag atc ccc ttc ttc agg aaa				305
Gly Glu Glu Cys His Pro Gly Ser His Lys Ile Pro Phe Phe Arg Lys				
57	62	67	72	
cgc aag cac cac acc tgt cct tgc ttg ccc aac ctg ctg tgc tcc agg				353
Arg Lys His His Thr Cys Pro Cys Leu Pro Asn Leu Leu Cys Ser Arg				
73	78	83	88	
ttc ccg gac ggc agg tac cgc tgc tcc atg gac ttg aag aac atc aat				401
Phe Pro Asp Gly Arg Tyr Arg Cys Ser Met Asp Leu Lys Asn Ile Asn				
89	94	99	104	
ttt tag gcgcttgct ggtctcagga taccacccat tcttttctg agcaca				453
Phe *				
105				

<210> 398  
 <211> 1735  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (473) .. (1201)

<400> 398	
ccccgggtcga cccacgcgtc cggcggcgct cggctcggct cgggcatttc cgcctctttg	60
ttttaaactc cggacgggct tttttctcct cctcttgggg gggaccacaga gggagcggcg	120
ccccctcccc cctccggcgc ggaccccgcg tgcgccttgc tcgcccgcag ccccgagacc	180
gcaggcgta caatgtagca gggacccacag gcgtcgtgct cagaaaatgg aaaaagagcc	240
agggccggaa ggagggtgca gaagcgagtc cgcgtgcgga gccaggaggc agcgtcgcgt	300
gggagtgtctg gcctgaagcc tccatgcccc ggcagaggga cggacacgcg gacgtctagc	360
ggaggctccc gtgtcctcag tatgcatcag gtctcccgaa cctcacagcc ccgcaggagg	420
gaggagaagg ggaggatttg actttggaag tctctgtgac cagaagccaa ag atg	475
	Met
	1



ttg acc agg aag atc aag ctg tgg gac atc aac gcc cac atc acc tgc	523
Leu Thr Arg Lys Ile Lys Leu Trp Asp Ile Asn Ala His Ile Thr Cys	
2 7 12 17	
cgc ctg tgc agc ggg tac ctc atc gac gcc acc acg gtg acc gag tgt	571
Arg Leu Cys Ser Gly Tyr Leu Ile Asp Ala Thr Thr Val Thr Glu Cys	
18 23 28 33	
ctg cac acc ttc tgc agg agc tgc ctg gtg aag tac ctg gag gag aac	619
Leu His Thr Phe Cys Arg Ser Cys Leu Val Lys Tyr Leu Glu Glu Asn	
34 39 44 49	
atc acc tgc ccc acc tgc agg att gtg atc cac cag agc cac ccc ctg	667
Ile Thr Cys Pro Thr Cys Arg Ile Val Ile His Gln Ser His Pro Leu	
50 55 60 65	
cag tac atc ggt cat gac aga acc atg caa gat att gtt tac aaa ttg	715
Gln Tyr Ile Gly His Asp Arg Thr Met Gln Asp Ile Val Tyr Lys Leu	
66 71 76 81	
gta cca ggc ctc caa gaa gcg gaa atg aga aag cag agg gag ttc tat	763
Val Pro Gly Leu Gln Glu Ala Glu Met Arg Lys Gln Arg Glu Phe Tyr	
82 87 92 97	
cac aaa ttg ggc atg gag gtg ccg gga gac atc aag ggg gag acc tgc	811
His Lys Leu Gly Met Glu Val Pro Gly Asp Ile Lys Gly Glu Thr Cys	
98 103 108 113	
tct gca aaa cag cac tta gat tcc cat cgg aat ggt gaa acc aaa gca	859
Ser Ala Lys Gln His Leu Asp Ser His Arg Asn Gly Glu Thr Lys Ala	
114 119 124 129	
gac gac agt tca aac aaa gag gcc gcg gag gag aag ccg gag gag gac	907
Asp Asp Ser Ser Asn Lys Glu Ala Ala Glu Glu Lys Pro Glu Glu Asp	
130 135 140 145	
aac gac tac cac cgc agc gac gag cag gtg agc atc tgc ctg gag tgt	955
Asn Asp Tyr His Arg Ser Asp Glu Gln Val Ser Ile Cys Leu Glu Cys	
146 151 156 161	
aac agc agc aaa ctg cgc ggg ctg aag cgg aag tgg atc cgc tgc tca	1003
Asn Ser Ser Lys Leu Arg Gly Leu Lys Arg Lys Trp Ile Arg Cys Ser	
162 167 172 177	
gcc cag gcg acc gtc ttg cat ctg aag aag ttc atc gcc aaa aaa ctc	1051
Ala Gln Ala Thr Val Leu His Leu Lys Lys Phe Ile Ala Lys Lys Leu	
178 183 188 193	
aac ctt tca tcc ttt aac gag ctg gac att tta tgc aac gag gag atc	1099
Asn Leu Ser Ser Phe Asn Glu Leu Asp Ile Leu Cys Asn Glu Glu Ile	
194 199 204 209	
ctg ggc aag gac cac aca ctc aag ttc gtg gtt gtc act agg tgg aga	1147
Leu Gly Lys Asp His Thr Leu Lys Phe Val Val Val Thr Arg Trp Arg	
210 215 220 225	

ttc aag aag gcg ccg ctc ctg ctg cac tac aga ccc aag atg gac ttg 1195  
 Phe Lys Lys Ala Pro Leu Leu Leu His Tyr Arg Pro Lys Met Asp Leu  
 226 231 236 241  
 ctg tga atggtgccac acagcgccca cagactgggc cctcgacccc ttgggtgctc 1251  
 Leu \*  
 242  
 ccggccgccc cgcttaagaa cattgcctct ggggtgtcatg tggaccagac ttctgaatag 1311  
 agaatattta taacttttgt atgagagaga attcacactc aacaagacac taccagcacc 1371  
 acgtttacag aggatgaaaa cacttcacag tctcccagag ccgatcgtcc tctccccgcg 1431  
 cccaccccgt gcttcagcct tgcagggaga gtgatgctcc aggcaacacg gttctgagtc 1491  
 accttctgac acgagctccc tctgcttget ttcagggtct tgaaaatctg aattcacttc 1551  
 agtttagttt atgaatttta ggtttcatga taagcctcaa ttgtagtgg acttttattg 1611  
 aatccttcct aagttattga aaaaatgtct tttcatgggtg aatgacaata tttatgttgc 1671  
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 aaaa 1735

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 Met Pro His Glu Val Val Arg Asp Glu Asn Ser Ser Val Tyr  
 1 5 10  
 gcc gag gtc tcc cgg ctg ctc ctc gcc acc ggc cac tgg aag agg ctg 95  
 Ala Glu Val Ser Arg Leu Leu Leu Ala Thr Gly His Trp Lys Arg Leu  
 15 20 25 30  
 cgg cga gac aac ccc aga ttc aac ctg atg ctg gga gag agg aat cgg 143  
 Arg Arg Asp Asn Pro Arg Phe Asn Leu Met Leu Gly Glu Arg Asn Arg  
 31 36 41 46  
 ctg ccc ttc ggg aga ctg ggt cac gag ccc ggg ctg gta cag ttg gtg 191  
 Leu Pro Phe Gly Arg Leu Gly His Glu Pro Gly Leu Val Gln Leu Val  
 47 52 57 62  
 aat tac tac agg ggt gct gac aaa ctg tgt cgc aaa gct tct tta gtg 239  
 Asn Tyr Tyr Arg Gly Ala Asp Lys Leu Cys Arg Lys Ala Ser Leu Val

63	68	73	78	
aag cta atc aag aca agc cct gaa ctg gct gag tcc tgc aca tgg ttc				287
Lys Leu Ile Lys Thr Ser Pro Glu Leu Ala Glu Ser Cys Thr Trp Phe				
79	84	89	94	
cct gaa tct tat gtg att tat cca acc aat ctc aag act cca gtt gct				335
Pro Glu Ser Tyr Val Ile Tyr Pro Thr Asn Leu Lys Thr Pro Val Ala				
95	100	105	110	
cca gca cag aat gga att cag cca cca atc agt aac tca agg aca gat				383
Pro Ala Gln Asn Gly Ile Gln Pro Pro Ile Ser Asn Ser Arg Thr Asp				
111	116	121	126	
gaa aga gaa ttc ttt ctc gcc tct tat aac aga aag aaa gag gat gga				431
Glu Arg Glu Phe Phe Leu Ala Ser Tyr Asn Arg Lys Lys Glu Asp Gly				
127	132	137	142	
gag ggc aac gtt tgg att gca aag tca tca gcc ggt gcc aaa ggt gaa				479
Glu Gly Asn Val Trp Ile Ala Lys Ser Ser Ala Gly Ala Lys Gly Glu				
143	148	153	158	
ggc att ctc atc tcc tca gag gct tca gag ctt ctc gat ttc ata gac				527
Gly Ile Leu Ile Ser Ser Glu Ala Ser Glu Leu Leu Asp Phe Ile Asp				
159	164	169	174	
aac cag ggc caa gtg cac gtg atc cag aaa tat ctt gag cac cct ctg				575
Asn Gln Gly Gln Val His Val Ile Gln Lys Tyr Leu Glu His Pro Leu				
175	180	185	190	
ctg ctt gag cca ggt cat cgc aag ttt gac atc cga agc tgg gtc ttg				623
Leu Leu Glu Pro Gly His Arg Lys Phe Asp Ile Arg Ser Trp Val Leu				
191	196	201	206	
gtg gat cat cag tat aat atc tac ctc tat aga gag ggt gtg ctt cgg				671
Val Asp His Gln Tyr Asn Ile Tyr Leu Tyr Arg Glu Gly Val Leu Arg				
207	212	217	222	
act gct tca gaa cca tat cat gtt gat aat ttc caa gac aaa acc tgc				719
Thr Ala Ser Glu Pro Tyr His Val Asp Asn Phe Gln Asp Lys Thr Cys				
223	228	233	238	
cat ttg acc aat cac tgc att caa aaa gag tat tca aag aac tac ggg				767
His Leu Thr Asn His Cys Ile Gln Lys Glu Tyr Ser Lys Asn Tyr Gly				
239	244	249	254	
aag tat gaa gaa gga aat gaa atg ttc ttc aag gag ttc aat cag tac				815
Lys Tyr Glu Glu Gly Asn Glu Met Phe Phe Lys Glu Phe Asn Gln Tyr				
255	260	265	270	
cta aca agt gct ttg aac att acc cta gaa agt agt atc tta cta caa				863
Leu Thr Ser Ala Leu Asn Ile Thr Leu Glu Ser Ser Ile Leu Leu Gln				
271	276	281	286	
atc aaa cat ata ata agg aac tgc ctc ctg agc gtg gag cct gcc att				911
Ile Lys His Ile Ile Arg Asn Cys Leu Leu Ser Val Glu Pro Ala Ile				
287	292	297	302	

agc acc aag cac ctc cct tac cag agc ttc cag ctc ttc ggc ttt gac 959  
 Ser Thr Lys His Leu Pro Tyr Gln Ser Phe Gln Leu Phe Gly Phe Asp  
 303 308 313 318

ttc atg gtc gac gag gag ctg aag gtg tgg ctc att gag gtc aac ggt 1007  
 Phe Met Val Asp Glu Glu Leu Lys Val Trp Leu Ile Glu Val Asn Gly  
 319 324 329 334

gcc cct gca tgt gct cag aag ctc tat gca gaa ctg tgc caa ggc atc 1055  
 Ala Pro Ala Cys Ala Gln Lys Leu Tyr Ala Glu Leu Cys Gln Gly Ile  
 335 340 345 350

gtg gac ata gcc att tcc agt gtc ttc cca ccc cca gat gtg gag caa 1103  
 Val Asp Ile Ala Ile Ser Ser Val Phe Pro Pro Pro Asp Val Glu Gln  
 351 356 361 366

cct cag acc cag cca gct gcc ttc atc aag ctg tga caga gggcactccc 1153  
 Pro Gln Thr Gln Pro Ala Ala Phe Ile Lys Leu \*  
 367 372 377

tgctgccttg gaaaaagcac ggtgtactgc tc 1185

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 gagcggcggc ggccatcgag acccacccaa ggcgcgctcc cctcggcctc ccagcgctcc 180  
 caagccgtag cggccgcgcc cttcagcta gctcgctcgc tcgctctgct tcctgctgc 240  
 cggctgcgcc atg gcg ttg gcg ttg gcg gcg ctg gcg gcg gtc gag ccg 289  
 Met Ala Leu Ala Leu Ala Ala Leu Ala Ala Val Glu Pro  
 1 5 10

gcc tgc ggc agc cgg tac cag cag ttg cag aat gaa gaa gag tct gga 337  
 Ala Cys Gly Ser Arg Tyr Gln Gln Leu Gln Asn Glu Glu Glu Ser Gly  
 14 19 24 29

gaa cct gaa cag gct gca ggt gat gct cct cca cct tac agc agc att 385  
 Glu Pro Glu Gln Ala Ala Gly Asp Ala Pro Pro Pro Tyr Ser Ser Ile  
 30 35 40 45

tct gca gag agc gca gca tat ttt gac tac aag gat gag tct ggg ttt 433

Ser Ala Glu Ser Ala Ala Tyr Phe Asp Tyr Lys Asp Glu Ser Gly Phe  
 46 51 56 61

cca aag ccc cca tct tac aat gta gct aca aca ctg ccc agt tat gat 481  
 Pro Lys Pro Pro Ser Tyr Asn Val Ala Thr Thr Leu Pro Ser Tyr Asp  
 62 67 72 77

gaa gcg gag agg acc aag gct gaa gct act atc cct ttg gtt cct ggg 529  
 Glu Ala Glu Arg Thr Lys Ala Glu Ala Thr Ile Pro Leu Val Pro Gly  
 78 83 88 93

aga gat gag gat ttt gtg ggt cgg gat gat ttt gat gat gct gac cag 577  
 Arg Asp Glu Asp Phe Val Gly Arg Asp Asp Phe Asp Asp Ala Asp Gln  
 94 99 104 109

ctg agg ata gga aat gat ggg att ttc atg tta act ttt ttc atg gca 625  
 Leu Arg Ile Gly Asn Asp Gly Ile Phe Met Leu Thr Phe Phe Met Ala  
 110 115 120 125

ttc ctc ttt aac tgg att ggg ttt ttc ctg tct ttt tgc ctg acc act 673  
 Phe Leu Phe Asn Trp Ile Gly Phe Phe Leu Ser Phe Cys Leu Thr Thr  
 126 131 136 141

tca gct gca gga agg tat ggg gcc att tca gga ttt ggt ctc tct cta 721  
 Ser Ala Ala Gly Arg Tyr Gly Ala Ile Ser Gly Phe Gly Leu Ser Leu  
 142 147 152 157

att aaa tgg atc ctg att gtc agg ttt tcc acc tat ttc cct gga tat 769  
 Ile Lys Trp Ile Leu Ile Val Arg Phe Ser Thr Tyr Phe Pro Gly Tyr  
 158 163 168 173

ttt gat ggt cag tac tgg ctc tgg tgg gtg ttc ctt gtt tta ggc ttt 817  
 Phe Asp Gly Gln Tyr Trp Leu Trp Trp Val Phe Leu Val Leu Gly Phe  
 174 179 184 189

ctc ctg ttt ctc aga gga ttt atc aat tat gca aaa gtt cgg aag atg 865  
 Leu Leu Phe Leu Arg Gly Phe Ile Asn Tyr Ala Lys Val Arg Lys Met  
 190 195 200 205

cca gaa act ttc tca aat ctc ccc agg acc aga gtt ctc ttt att tat 913  
 Pro Glu Thr Phe Ser Asn Leu Pro Arg Thr Arg Val Leu Phe Ile Tyr  
 206 211 216 221

tta agat gttttctggc aaaggccttc ctgcatttat gaattctctc tcaagaagca 970  
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222 agagaacacc tgcaggaagt gaatcaagat gcagaacaca gaggaataat cacctgcttt 1030

aaaaaaataa agtactgttg aaaagatcat ttctctctat ttgttcctag gtgtaaaatt 1090

ttaatagtta atgcagaatt ctgtaatcat tgaatcatta gtggttaatg tttgaaaaag 1150

ctcttgcaat caagtctgtg atgtattaat aatgccttat atattgtttg tagtcatttt 1210

aagtagcatg agccatgtcc ctgtagtcgg tagggggcag tcttgcttta ttcacccctc 1270

atctcaaaat gaacttggaa ttaaatttg taagatatgt ataatgctgg ccatttttaa 1330  
 ggggttttct caaaagttaa acttttgta tgactgtgtt ttgacacata atccatattt 1390  
 gctgttcaag ttaattctaga aatttattca attctgtatg aacacctgga agcaaaatca 1450  
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 cattaattttt ttatagcctg tattcacaat tctgcggtac cttattgtac ctaagggtatt 1570  
 ctaaagggtgt tgtcactgta taaaacagaa agcactagga tacaatgaa gcttaattac 1630  
 taaaatgtaa ttcttgacac tctttctata attagcgttc ttcacccccca cccccacccc 1690  
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 ggattaggta cttaggagca aagaaagaag tagcttgga cttttgagat gatccctaac 1810  
 atactgtact acttgctttt acaatgtgtt agcagaaacc agtgggttat aatgtagaat 1870  
 gatgtgcttt ctgccaagt ggtaattcat cttgggttgc tatgttaaaa ctgtaaatat 1930  
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 Met Ala Leu Ala  
 1  
 tcc ggg ccc gca agg cgg gcg cta gct ggc tcc ggg cag ctc ggc ctt 162  
 Ser Gly Pro Ala Arg Arg Ala Leu Ala Gly Ser Gly Gln Leu Gly Leu  
 5 10 15 20  
 ggg ggc ttc ggg gcc ccg aga cgc ggg gcg tat gag tgg ggc gtg cgc 210  
 Gly Gly Phe Gly Ala Pro Arg Arg Gly Ala Tyr Glu Trp Gly Val Arg  
 21 26 31 36  
 tcc acg cgg aag tcg gag cct cct ccc ctg gat agg gtg tac gag atc 258  
 Ser Thr Arg Lys Ser Glu Pro Pro Pro Leu Asp Arg Val Tyr Glu Ile  
 37 42 47 52  
 cct gga ctg gag ccc atc acc ttt gcg ggg aag atg cac ttc gtg ccc 306  
 Pro Gly Leu Glu Pro Ile Thr Phe Ala Gly Lys Met His Phe Val Pro

53	58	63	68	
tgg ctg gcg cgg ccg atc ttt ccg ccc tgg gac cgc ggc tac aag gac				354
Trp Leu Ala Arg Pro Ile Phe Pro Pro Trp Asp Arg Gly Tyr Lys Asp				
69	74	79	84	
cca agg ttc tac cgc tgc ccc cct ctt cac gag cat ccg ctg tac aaa				402
Pro Arg Phe Tyr Arg Ser Pro Pro Leu His Glu His Pro Leu Tyr Lys				
85	90	95	100	
gac cag gcc tgc tat atc ttt cac cac cgt tgc cgc ctt ctc gag ggt				450
Asp Gln Ala Cys Tyr Ile Phe His His Arg Cys Arg Leu Leu Glu Gly				
101	106	111	116	
gta aag cag gcc ctc tgg ctc acc aag acc aag tta ata gaa ggc ctt				498
Val Lys Gln Ala Leu Trp Leu Thr Lys Thr Lys Leu Ile Glu Gly Leu				
117	122	127	132	
ccc gag aaa gtg ctt agc ctt gtt gat gat cca agg aac cac ata gag				546
Pro Glu Lys Val Leu Ser Leu Val Asp Asp Pro Arg Asn His Ile Glu				
133	138	143	148	
aac caa gac gag tgc gtt ctg aat gtg atc tct cac gcc cgt ctc tgg				594
Asn Gln Asp Glu Cys Val Leu Asn Val Ile Ser His Ala Arg Leu Trp				
149	154	159	164	
cag acc act gag gaa atc ccc aag aga gag acc tac tgc ccg gtc atc				642
Gln Thr Thr Glu Glu Ile Pro Lys Arg Glu Thr Tyr Cys Pro Val Ile				
165	170	175	180	
gtg gac aac cta ata cag ctg tgt aaa tct cag att ctc aag cat cct				690
Val Asp Asn Leu Ile Gln Leu Cys Lys Ser Gln Ile Leu Lys His Pro				
181	186	191	196	
tct ctg gcc agg agg atc tgt gtc caa aac tcc acg ttt tct gct acc				738
Ser Leu Ala Arg Arg Ile Cys Val Gln Asn Ser Thr Phe Ser Ala Thr				
197	202	207	212	
tgg aac cga gag tct ctt ctc ctt caa gtc cgt ggt tct ggt gga gcc				786
Trp Asn Arg Glu Ser Leu Leu Leu Gln Val Arg Gly Ser Gly Gly Ala				
213	218	223	228	
cga ctg agc act aag gat cct ctg ccc acc atc gcc tcc aga gag gag				834
Arg Leu Ser Thr Lys Asp Pro Leu Pro Thr Ile Ala Ser Arg Glu Glu				
229	234	239	244	
att gaa gct act aag aat cat gtt cta gag acc ttc tac ccc ata tca				882
Ile Glu Ala Thr Lys Asn His Val Leu Glu Thr Phe Tyr Pro Ile Ser				
245	250	255	260	
ccc atc atc gat ctt cat gaa tgc aat att tat gat gtg aaa aat gac				930
Pro Ile Ile Asp Leu His Glu Cys Asn Ile Tyr Asp Val Lys Asn Asp				
261	266	271	276	
aca gga ttc cag gaa ggc tat cct tac ccc tat ccc cat acc ctg tac				978
Thr Gly Phe Gln Glu Gly Tyr Pro Tyr Pro Tyr Pro His Thr Leu Tyr				
277	282	287	292	

tta ctg gac aaa gcc aat tta cga cca cac cgc ctt caa cca gat cag	1026
Leu Leu Asp Lys Ala Asn Leu Arg Pro His Arg Leu Gln Pro Asp Gln	
293 298 303 308	
ctg cgg gcc aag atg atc ctg ttt gct ttt ggc agt gcc ctg gct cag	1074
Leu Arg Ala Lys Met Ile Leu Phe Ala Phe Gly Ser Ala Leu Ala Gln	
309 314 319 324	
gcc cgg ctc ctc tat ggg aat gat gcc aag gtc ttg gag cag ccc gtg	1122
Ala Arg Leu Leu Tyr Gln Asn Asp Ala Lys Val Leu Glu Gln Pro Val	
325 330 335 340	
gtg gtg cag agc gtg ggc acg gat gga cgt gtc ttc cat ttc cta gtg	1170
Val Val Gln Ser Val Gly Thr Asp Gly Arg Val Phe His Phe Leu Val	
341 346 351 356	
ttt caa ctg aat acc aca gac ctg gac tgt aac gag ggt gtc aag aat	1218
Phe Gln Leu Asn Thr Thr Asp Leu Asp Cys Asn Glu Gly Val Lys Asn	
357 362 367 372	
ttg gcc tgg gtg gac tca gac cag ctc ctc tat cag cat ttt tgg tgt	1266
Leu Ala Trp Val Asp Ser Asp Gln Leu Leu Tyr Gln His Phe Trp Cys	
373 378 383 388	
ctc cca gtg atc aaa aag aga gtg gtt gtg gaa cct gtt ggg cca gtt	1314
Leu Pro Val Ile Lys Lys Arg Val Val Val Glu Pro Val Gly Pro Val	
389 394 399 404	
ggt ttc aag cca gag aca ttc aga aag ttt tta gct cta tat ttg cat	1362
Gly Phe Lys Pro Glu Thr Phe Arg Lys Phe Leu Ala Leu Tyr Leu His	
405 410 415 420	
ggt gct gcg tga gca gaggaccct ctgaatcctg aaaccctct tgcctctctt	1417
Gly Ala Ala *	
421	
ccacggaaga gggcctgggc cccgtggagc ctgagtgccc gtttggcctg ctgctctcgc	1477
tgacaataaa gagcccttgc gttgcaaaaa aaaaaaa	1514

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 <212> DNA  
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<220>  
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tgcttttttag ctgagctctg gtggatgaga ggagctagcc ttgaaaaact tgatactgat	120



ggacattgtg tgggccagag gcaggg atg gtt ggc tat gac ccc aaa cca gat	173
Met Val Gly Tyr Asp Pro Lys Pro Asp	
1 5	
ggc agg aat aac acc aag ttc cag gtg gca gtg gct ggg tct gtg tct	221
Gly Arg Asn Asn Thr Lys Phe Gln Val Ala Val Ala Gly Ser Val Ser	
10 15 20 25	
gga ctt gtt act cgg gcg ctg atc agt ccc ttc gac gtc atc aag atc	269
Gly Leu Val Thr Arg Ala Leu Ile Ser Pro Phe Asp Val Ile Lys Ile	
26 31 36 41	
cgt ttc cag ctt cag cat gag cgc ctg tct cgc agt gac ccc agc gca	317
Arg Phe Gln Leu Gln His Glu Arg Leu Ser Arg Ser Asp Pro Ser Ala	
42 47 52 57	
aag tac cat ggc atc ctc cag gcc tct agg cag att ctg cag gag gag	365
Lys Tyr His Gly Ile Leu Gln Ala Ser Arg Gln Ile Leu Gln Glu Glu	
58 63 68 73	
ggg ccg aca gct ttc tgg aaa gga cac gtc cca gct cag att ctc tcc	413
Gly Pro Thr Ala Phe Trp Lys Gly His Val Pro Ala Gln Ile Leu Ser	
74 79 84 89	
ata ggc tat gga gct gtc caa ttc ttg tca ttt gaa atg ctg acg gag	461
Ile Gly Tyr Gly Ala Val Gln Phe Leu Ser Phe Glu Met Leu Thr Glu	
90 95 100 105	
ctg gtc cac aga ggc agc gtg tac gac gcc cgg gaa ttc tca gtg cac	509
Leu Val His Arg Gly Ser Val Tyr Asp Ala Arg Glu Phe Ser Val His	
106 111 116 121	
ttt gta tgt ggt ggc ctg gct gcc tgt atg gcc acc ctc act gtg cac	557
Phe Val Cys Gly Gly Leu Ala Ala Cys Met Ala Thr Leu Thr Val His	
122 127 132 137	
ccc gtg gat gtt ctg cgc acc cgc ttt gca gct cag ggt gag ccc aag	605
Pro Val Asp Val Leu Arg Thr Arg Phe Ala Ala Gln Gly Glu Pro Lys	
138 143 148 153	
gtc tat aat acg ctg cgc cac gcc gtg ggg acc atg tat agg agc gaa	653
Val Tyr Asn Thr Leu Arg His Ala Val Gly Thr Met Tyr Arg Ser Glu	
154 159 164 169	
ggc ccc cag gtt ttc tac aaa ggc ttg gct ccc acc ttg atc gcc atc	701
Gly Pro Gln Val Phe Tyr Lys Gly Leu Ala Pro Thr Leu Ile Ala Ile	
170 175 180 185	
ttc ccc tac gcc ggg ctg cag ttc tct tgc tac agc tcc ttg aag cac	749
Phe Pro Tyr Ala Gly Leu Gln Phe Ser Cys Tyr Ser Ser Leu Lys His	
186 191 196 201	
ctg tac aag tgg gcc ata cca gcc gaa gga aag aaa aat gag aac ctc	797
Leu Tyr Lys Trp Ala Ile Pro Ala Glu Gly Lys Lys Asn Glu Asn Leu	
202 207 212 217	

caa aac ctg ctt tgt ggc agt gga gct ggt gtc atc agc aag acc ctg	845
Gln Asn Leu Leu Cys Gly Ser Gly Ala Gly Val Ile Ser Lys Thr Leu	
218 223 228 233	
aca tat ccg ctg gac ctc ttc aag aag cgg cta cag gtt gga ggg ttt	893
Thr Tyr Pro Leu Asp Leu Phe Lys Lys Arg Leu Gln Val Gly Gly Phe	
234 239 244 249	
gag cat gcc aga gct gcc ttt ggc cag gta cgg aga tac aag ggc ctc	941
Glu His Ala Arg Ala Ala Phe Gly Gln Val Arg Arg Tyr Lys Gly Leu	
250 255 260 265	
atg gac tgt gcc aag cag gtg cta caa aag gaa ggc gcc ctg ggc ttc	989
Met Asp Cys Ala Lys Gln Val Leu Gln Lys Glu Gly Ala Leu Gly Phe	
266 271 276 281	
ttc aag ggc ctg tcc ccc agc ttg ctg aag gct gcc ctc tcc aca ggc	1037
Phe Lys Gly Leu Ser Pro Ser Leu Leu Lys Ala Ala Leu Ser Thr Gly	
282 287 292 297	
ttc atg ttc ttc tgc tat gaa ttc ttc tgt aat gtc ttc cac tgc atg	1085
Phe Met Phe Phe Ser Tyr Glu Phe Phe Cys Asn Val Phe His Cys Met	
298 303 308 313	
aac agg aca gcc agc cag cgc tga ggcaggaag gacccaggt cttccctgga	1139
Asn Arg Thr Ala Ser Gln Arg *	
314 319	
ggcagcctcc tgaaggaagg aagattcagt ctccactgag aggtgccgtc tggcccttcc	1199
ctgcaggcca gctgccccaa ggggggtagc agccttgaac ccaccagct gggacaccac	1259
cagaaggtcc agggctctcc ccatgagaga atcagaggga atgcaggacg tggctctatgg	1319
tgagccaacg acacagtgag aaggagcagg aagttgctgt ttctcctctg accagcccac	1379
actgcaaagg aaacagacgc catcctacac ctatcagccc tgccctgccag gagaacagaa	1439
cacactcctg gtctggatgg ggctgctgct tgagtgcaga gggctgctgt aggccctttg	1499
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 <212> DNA  
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<220>  
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 <222> (266)..(1759)

<400> 403

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cggagatgtc gctcgggccgc cttctaccag gagcctgata cgtgccgccc gccgcccgga 180  
tgggaccacc agagtgtctt aaagtctcca gtgaatattg aattgctgag gattttggga 240  
aaagacaaat caaagttccc attcc atg gat ccc tta ggt gca cct tcc cag 292  
Met Asp Pro Leu Gly Ala Pro Ser Gln  
1 5  
ttt gtg gat gtg gat aca cta cca agc tgg ggt gac tca tgc caa gat 340  
Phe Val Asp Val Asp Thr Leu Pro Ser Trp Gly Asp Ser Cys Gln Asp  
10 15 20 25  
gaa tta aat tcc tct gat act aca gct gaa ata ttt cag gaa gac act 388  
Glu Leu Asn Ser Ser Asp Thr Thr Ala Glu Ile Phe Gln Glu Asp Thr  
26 31 36 41  
gtt cga tca cct ttt ctt tat aat aag gac gtc aat gga aaa gtg gtt 436  
Val Arg Ser Pro Phe Leu Tyr Asn Lys Asp Val Asn Gly Lys Val Val  
42 47 52 57  
ctt tgg aaa gga gat gtg gca tta ctg aac tgt aca gcc att gtg aat 484  
Leu Trp Lys Gly Asp Val Ala Leu Leu Asn Cys Thr Ala Ile Val Asn  
58 63 68 73  
acc agc aat gaa agt ctc aca gat aag aat cct gtg tca gaa agt atc 532  
Thr Ser Asn Glu Ser Leu Thr Asp Lys Asn Pro Val Ser Glu Ser Ile  
74 79 84 89  
ttc atg ctt gca ggg cct gat ttg aag gaa gat ctc cag aaa ctt aaa 580  
Phe Met Leu Ala Gly Pro Asp Leu Lys Glu Asp Leu Gln Lys Leu Lys  
90 95 100 105  
ggg tgc cga aca ggt gaa gca aaa ttg aca aaa gga ttc aat cta gct 628  
Gly Cys Arg Thr Gly Glu Ala Lys Leu Thr Lys Gly Phe Asn Leu Ala  
106 111 116 121  
gcc cgg ttc atc att cac aca gtg gga cct aaa tat aaa agc cgc tat 676  
Ala Arg Phe Ile Ile His Thr Val Gly Pro Lys Tyr Lys Ser Arg Tyr  
122 127 132 137  
cgc aca gca gct gag agt tcc ctt tat agc tgc tac aga aac gta ctt 724  
Arg Thr Ala Ala Glu Ser Ser Leu Tyr Ser Cys Tyr Arg Asn Val Leu  
138 143 148 153  
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Gln Leu Ala Lys Glu Gln Ser Met Ser Ser Val Gly Phe Cys Val Ile  
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Asn Ser Ala Lys Arg Gly Tyr Pro Leu Glu Asp Ala Thr His Ile Ala  
170 175 180 185  
ctt cgc act gta aga aga ttc cta gag att cat ggg gaa acc att gaa 868

Leu Arg Thr Val Arg Arg Phe Leu Glu Ile His Gly Glu Thr Ile Glu	
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Lys Val Val Phe Ala Val Ser Asp Leu Glu Glu Gly Thr Tyr Gln Lys	
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Leu Leu Pro Leu Tyr Phe Pro Arg Ser Leu Lys Glu Glu Asn Arg Ser	
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Leu Pro Tyr Leu Pro Ala Asp Ile Gly Asn Ala Glu Gly Glu Pro Val	
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gta cct gaa cga cag att aga ata agt gag aaa cct ggt gct cca gaa	1060
Val Pro Glu Arg Gln Ile Arg Ile Ser Glu Lys Pro Gly Ala Pro Glu	
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Asp Asn Gln Glu Glu Glu Asp Glu Gly Leu Gly Val Asp Leu Ser Phe	
266 271 276 281	
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Ile Gly Ser His Ala Phe Ala Arg Met Glu Gly Asp Ile Asp Lys Gln	
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Arg Lys Leu Ile Leu Gln Gly Gln Leu Ser Glu Ala Ala Leu Gln Lys	
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Gln His Gln Arg Asn Tyr Asn Arg Trp Leu Cys Gln Ala Arg Ala Glu	
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gat ctg tct gat att gct tct cta aaa gcc tta tac caa aca ggt gtt	1300
Asp Leu Ser Asp Ile Ala Ser Leu Lys Ala Leu Tyr Gln Thr Gly Val	
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Asp Asn Cys Gly Arg Thr Val Met Val Val Val Gly Arg Asn Ile Pro	
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Val Thr Leu Ile Asp Met Asp Lys Ala Leu Leu Tyr Phe Ile His Val	
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atg gat cac att gct gtg aag gag tat gta tta gtg tat ttt cac acc	1444
Met Asp His Ile Ala Val Lys Glu Tyr Val Leu Val Tyr Phe His Thr	
378 383 388 393	
ctg acc agc gaa tac aat cac ctg gac tcc gac ttc ctg aag aaa ctc	1492
Leu Thr Ser Glu Tyr Asn His Leu Asp Ser Asp Phe Leu Lys Lys Leu	
394 399 404 409	
tac gat gtt gtt gat gtc aag tac aag agg aat ttg aag gct gtt tat	1540
Tyr Asp Val Val Asp Val Lys Tyr Lys Arg Asn Leu Lys Ala Val Tyr	

410	415	420	425	
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Phe Val His Pro Thr	Phe Arg Ser Lys Val	Ser Thr Trp Phe Phe	Thr	
426	431	436	441	
acc ttt tct gtc tca	gga ctg aag gac aaa	atc cac cat gtg gac	agc	1636
Thr Phe Ser Val Ser	Gly Leu Lys Asp Lys	Ile His His Val Asp	Ser	
442	447	452	457	
ctc cac cag ctg ttt	tct gcc ata tca cca	gaa cag att gac ttt	cct	1684
Leu His Gln Leu Phe	Ser Ala Ile Ser Pro	Glu Gln Ile Asp Phe	Pro	
458	463	468	473	
cct ttt gtc ctt gaa	tat gat gcc agg gaa	aac ggg cct tac tat	aca	1732
Pro Phe Val Leu Glu	Tyr Asp Ala Arg Glu	Asn Gly Pro Tyr Tyr	Thr	
474	479	484	489	
tca tat ccc cca tca	cca gat ttg tga cctgc	catctttcag tgcttcttg		1784
Ser Tyr Pro Pro Ser	Pro Asp Leu *			
490	495			
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ggtggacacc cgggtccttg	
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cgtgctgcgg ggacacc	
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gcc tta ggg ggc agt	ttc
285	

Met Ala Pro Glu Glu Asp Ala Gly Gly Glu Ala Leu Gly Gly Ser Phe  
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 Trp Glu Ala Gly Asn Tyr Arg Arg Thr Val Gln Arg Val Glu Asp Gly  
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 His Arg Leu Cys Gly Asp Leu Val Ser Cys Phe Gln Glu Arg Ala Arg  
 33 38 43 48

atc gag aag gct tat gcc cag cag ttg gct gac tgg gcc cga aag tgg 429  
 Ile Glu Lys Ala Tyr Ala Gln Gln Leu Ala Asp Trp Ala Arg Lys Trp  
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agg ggg acc gtg gag aag ggc ccc cag tat ggc aca ctg gag aag gcc 477  
 Arg Gly Thr Val Glu Lys Gly Pro Gln Tyr Gly Thr Leu Glu Lys Ala  
 65 70 75 80

tgg cat gcc ttt ttc acg gcg gct gag cgg ctg agc gcg ctg cac ctg 525  
 Trp His Ala Phe Phe Thr Ala Ala Glu Arg Leu Ser Ala Leu His Leu  
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gag gtg cgg gag aag ctg caa ggg cag gac agt gag cgg gtg cgc gcc 573  
 Glu Val Arg Glu Lys Leu Gln Gly Gln Asp Ser Glu Arg Val Arg Ala  
 97 102 107 112

tgg cag cgg ggg gct ttc cac cgg cct gtg ctg ggc ggc ttc cgc gag 621  
 Trp Gln Arg Gly Ala Phe His Arg Pro Val Leu Gly Gly Phe Arg Glu  
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agc cgg gcg gcc gag gac ggc ttc cgc aag gcc cag aag ccc tgg ctg 669  
 Ser Arg Ala Ala Glu Asp Gly Phe Arg Lys Ala Gln Lys Pro Trp Leu  
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aag agg ctg aag gag gtt gag gct tcc aag aaa agc tac cac gca gcc 717  
 Lys Arg Leu Lys Glu Val Glu Ala Ser Lys Lys Ser Tyr His Ala Ala  
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cgg aag gat gag aag acc gcc cag acg agg gag agc cac gca aag gca 765  
 Arg Lys Asp Glu Lys Thr Ala Gln Thr Arg Glu Ser His Ala Lys Ala  
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gac agc gcc gtc tcc cag gag cag ctg cgc aaa ctg cag gaa cgg gtg 813  
 Asp Ser Ala Val Ser Gln Glu Gln Leu Arg Lys Leu Gln Glu Arg Val  
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gaa cgc tgt gcc aag gag gcc gag aag aca aaa gct cag tat gag cag 861  
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acg ctg gca gag ctg cat cgc tac act cca cgc tac atg gag gac atg 909  
 Thr Leu Ala Glu Leu His Arg Tyr Thr Pro Arg Tyr Met Glu Asp Met  
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Phe Phe Lys Asp Met	Leu Leu Thr Leu His	Gln His Leu Asp Leu Ser		
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agc agt gag aag ttc	cat gaa ctc cac cgt	gac ttg cac cag ggc att		1053
Ser Ser Glu Lys Phe	His Glu Leu His Arg	Asp Leu His Gln Gly Ile		
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gag gca gcc agt gac	gaa gag gat ctg cgc	tgg tgg cgc agc acc cac		1101
Glu Ala Ala Ser Asp	Glu Glu Asp Leu Arg	Trp Trp Arg Ser Thr His		
273	278	283	288	
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Gly Pro Gly Met Ala	Met Asn Trp Pro Gln	Phe Glu Glu Trp Ser Leu		
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Asp Thr Gln Arg Thr	Ile Ser Arg Lys Glu	Lys Gly Gly Arg Ser Pro		
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gat gag gtt acc ctg	acc agc att gtg cct	aca aga gat ggc acc gca		1245
Asp Glu Val Thr Leu	Thr Ser Ile Val Pro	Thr Arg Asp Gly Thr Ala		
321	326	331	336	
ccc cca ccc cag tcc	ccg ggg tcc cca ggc	acg ggg cag gat gag gag		1293
Pro Pro Pro Gln Ser	Pro Gly Ser Pro Gly	Thr Gly Gln Asp Glu Glu		
337	342	347	352	
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Trp Ser Asp Glu Glu	Ser Pro Arg Lys Ala	Ala Thr Gly Val Arg Val		
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agg gca ctc tat gac	tac gct ggc cag gaa	gct gat gag ctg agc ttc		1389
Arg Ala Leu Tyr Asp	Tyr Ala Gly Gln Glu	Ala Asp Glu Leu Ser Phe		
369	374	379	384	
cga gca ggg gag gag	ctg ctg aag atg agt	gag gag gac gag cag ggc		1437
Arg Ala Gly Glu Glu	Leu Leu Lys Met Ser	Glu Glu Asp Glu Gln Gly		
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Trp Cys Gln Gly Gln	Leu Gln Ser Gly Arg	Ile Gly Leu Tyr Pro Ala		
401	406	411	416	
aac tac gtg gag tgt	gtg ggc gcc tga gtgtc	ctgacagccc ttctgcaacg		1537
Asn Tyr Val Glu Cys	Val Gly Ala *			
417	422			
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accgtcgctc tctggctgct	cctctgtccc ttgagggagg	aagtcctggg acccagggag		1657
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aagatgggag gtcagaggtg	acagaagcgt tcaggggtgc	ctgggcctcc ccaggagctg		1777

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 gggaaggagc ctggacacag tgacacattc tcaaaggccc tgcaggacca cc atg 175  
 Met  
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 gct tat gat gac tcc gtg aag aaa gaa gat tgt ttt gat ggt gat cat 223  
 Ala Tyr Asp Asp Ser Val Lys Lys Glu Asp Cys Phe Asp Gly Asp His  
 2 7 12 17  
 acc ttt gag gac ata gga ctt gca gct ggc cga agc caa cga gag aaa 271  
 Thr Phe Glu Asp Ile Gly Leu Ala Ala Gly Arg Ser Gln Arg Glu Lys  
 18 23 28 33  
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 Lys Arg Ser Tyr Lys Asp Phe Leu Arg Glu Glu Glu Glu Ile Ala Ala  
 34 39 44 49  
 cag gtc agg aat tct tcc aag aag aag ttg aag gat agt gaa ctt tac 367  
 Gln Val Arg Asn Ser Ser Lys Lys Lys Leu Lys Asp Ser Glu Leu Tyr  
 50 55 60 65  
 ttc ttg ggg acg gac aca cac aag aag aag agg aag cac tcc tct gat 415  
 Phe Leu Gly Thr Asp Thr His Lys Lys Lys Arg Lys His Ser Ser Asp  
 66 71 76 81  
 gat tac tac tat gga gac att tcg tct ttg gaa tcg tca cag aag aaa 463  
 Asp Tyr Tyr Tyr Gly Asp Ile Ser Ser Leu Glu Ser Ser Gln Lys Lys  
 82 87 92 97  
 aag aaa aag tcc agc cca cag tct act gat aca gct atg gac ctg ttg 511  
 Lys Lys Lys Ser Ser Pro Gln Ser Thr Asp Thr Ala Met Asp Leu Leu  
 98 103 108 113  
 aaa gct atc act tcc cca ctg gca gca ggc tcc aag ccc tcc aaa aag 559



Lys	Ala	Ile	Thr	Ser	Pro	Leu	Ala	Ala	Gly	Ser	Lys	Pro	Ser	Lys	Lys	
114					119					124					129	
act	ggg	gag	aaa	tcc	tct	ggc	tct	tca	agc	cat	tcg	gag	agt	aaa	aag	607
Thr	Gly	Glu	Lys	Ser	Ser	Gly	Ser	Ser	Ser	His	Ser	Glu	Ser	Lys	Lys	
130					135					140					145	
gag	cac	cac	agg	aag	aaa	gtc	agt	gga	agc	agt	ggg	gaa	cta	ccc	cta	655
Glu	His	His	Arg	Lys	Lys	Val	Ser	Gly	Ser	Ser	Gly	Glu	Leu	Pro	Leu	
146					151					156					161	
gag	gat	ggg	ggc	tcc	cac	aaa	tcg	aaa	aaa	atg	aaa	cct	ctc	tat	gtg	703
Glu	Asp	Gly	Gly	Ser	His	Lys	Ser	Lys	Lys	Met	Lys	Pro	Leu	Tyr	Val	
162					167					172					177	
aac	aca	gag	aca	ctg	acc	ctt	cgg	gag	cct	gat	ggg	tta	aaa	atg	aaa	751
Asn	Thr	Glu	Thr	Leu	Thr	Leu	Arg	Glu	Pro	Asp	Gly	Leu	Lys	Met	Lys	
178					183					188					193	
ctt	att	ctg	tca	cca	aag	gag	aag	gga	agc	agc	tct	gtt	gat	gag	gag	799
Leu	Ile	Leu	Ser	Pro	Lys	Glu	Lys	Gly	Ser	Ser	Ser	Val	Asp	Glu	Glu	
194					199					204					209	
tct	ttt	caa	tat	ccc	tcc	caa	caa	gcg	act	gtg	aaa	aaa	tcc	tca	aag	847
Ser	Phe	Gln	Tyr	Pro	Ser	Gln	Gln	Ala	Thr	Val	Lys	Lys	Ser	Ser	Lys	
210					215					220					225	
aaa	tca	gct	cgg	gat	gag	cag	ggg	gct	tta	ctc	cta	gga	cat	gag	tta	895
Lys	Ser	Ala	Arg	Asp	Glu	Gln	Gly	Ala	Leu	Leu	Leu	Gly	His	Glu	Leu	
226					231					236					241	
cag	agc	ttt	ctg	aaa	aca	gcc	cgg	aaa	aag	cac	aag	tca	tcc	tca	gac	943
Gln	Ser	Phe	Leu	Lys	Thr	Ala	Arg	Lys	Lys	His	Lys	Ser	Ser	Ser	Asp	
242					247					252					257	
gca	cat	tca	tct	cct	ggc	cct	gaa	ggc	tgt	ggg	tct	gac	gcc	tcc	cag	991
Ala	His	Ser	Ser	Pro	Gly	Pro	Glu	Gly	Cys	Gly	Ser	Asp	Ala	Ser	Gln	
258					263					268					273	
ttc	gca	gag	tcc	cac	agt	gct	aac	ctt	gat	ctt	tca	ggg	ctt	gaa	cct	1039
Phe	Ala	Glu	Ser	His	Ser	Ala	Asn	Leu	Asp	Leu	Ser	Gly	Leu	Glu	Pro	
274					279					284					289	
att	ctg	gta	gaa	tca	gac	tca	tcc	tct	ggg	ggg	gaa	cta	gag	gct	ggg	1087
Ile	Leu	Val	Glu	Ser	Asp	Ser	Ser	Ser	Gly	Gly	Glu	Leu	Glu	Ala	Gly	
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gag	tta	gtg	ata	gat	gat	tct	tac	cga	gaa	atc	aag	aag	aaa	aag	aag	1135
Glu	Leu	Val	Ile	Asp	Asp	Ser	Tyr	Arg	Glu	Ile	Lys	Lys	Lys	Lys	Lys	
306					311					316					321	
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Ser	Lys	Lys	Ser	Lys	Lys	Lys	Lys	Asp	Lys	Glu	Lys	His	Lys	Glu	Lys	
322					327					332					337	
cga	cac	tcc	aag	tcc	aag	aga	agt	tta	gga	ctt	tct	gcc	gtg	cca	gtg	1231
Arg	His	Ser	Lys	Ser	Lys	Arg	Ser	Leu	Gly	Leu	Ser	Ala	Val	Pro	Val	

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gga gag gtc aca gtg	aca tct ggc cct cct	ccc agc atc cca tac gct		1279
Gly Glu Val Thr Val	Thr Ser Gly Pro Pro	Pro Ser Ile Pro Tyr Ala		
354	359	364	369	
gga gca gca gca cct	ccc ctg cca ctt cct	ggc ctc cac aca gat ggg		1327
Gly Ala Ala Ala Pro	Pro Leu Pro Leu Pro	Gly Leu His Thr Asp Gly		
370	375	380	385	
cat agt gaa aaa aaa	aaa aaa aaa gag	aag gac aaa gag aga gag		1375
His Ser Glu Lys Lys	Lys Lys Lys Lys Glu	Lys Asp Lys Glu Arg Glu		
386	391	396	401	
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Arg Gly Glu Lys Pro	Lys Lys Lys Asn Met	Ser Ala Tyr Gln Val Phe		
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Cys Lys Glu Tyr Arg	Val Thr Ile Val Ala	Asp His Pro Gly Ile Asp		
418	423	428	433	
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Phe Gly Glu Leu Ser	Lys Lys Leu Ala Glu	Val Trp Lys Gln Leu Pro		
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Glu Lys Asp Lys Leu	Ile Trp Lys Gln Lys	Ala Gln Tyr Leu Gln His		
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466	471	476	481	
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Ser Glu Gly Ser Met	Lys Val Lys Ala Ser	Ser Val Gly Val Leu Ser		
482	487	492	497	
ccc cag aag aag tcc	cca ccc acc acc atg	ctg tta cca gcc tca cca		1711
Pro Gln Lys Lys Ser	Pro Pro Thr Thr Met	Leu Leu Pro Ala Ser Pro		
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Ala Lys Ala Pro Glu	Thr Glu Pro Ile Asp	Val Ala Ala His Leu Gln		
514	519	524	529	
ctg ttg gga gag tcc	cta agc ctc att gga	cac cgt ctg cag gaa act		1807
Leu Leu Gly Glu Ser	Leu Ser Leu Ile Gly	His Arg Leu Gln Glu Thr		
530	535	540	545	
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Glu Gly Met Val Ala	Val Ser Gly Ser Leu	Ser Val Leu Leu Asp Ser		
546	551	556	561	
att atc tgt gcc ctt	ggc ccc ttg gca tgt	ctc acc aca caa cta cct		1903
Ile Ile Cys Ala Leu	Gly Pro Leu Ala Cys	Leu Thr Thr Gln Leu Pro		
562	567	572	577	

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Glu Leu Asn Gly Cys Pro Lys Gln Val Leu Ser Asn Thr Leu Asp Asn	
578 583 588 593	
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Ile Ala Tyr Thr Thr Pro Gly Leu *	
594 599	
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 Met Ser Arg Met Phe Cys Gln Ala Ala  
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 Arg Val Asp Leu Thr Leu Asp Pro Asp Thr Ala His Pro Ala Leu Met  
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 ctg tcc cct gac cgc cgg ggg gtc cgc ctg gca gag cgg cgg cag gag 329  
 Leu Ser Pro Asp Arg Arg Gly Val Arg Leu Ala Glu Arg Arg Gln Glu

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Val Ala Asp His Pro Lys Arg Phe Ser Ala Asp Cys Cys Val Leu Gly				
42	47	52	57	
gcc cag ggc ttc cgc tcc ggc cgg cac tac tgg gag gta gag gtg ggc				425
Ala Gln Gly Phe Arg Ser Gly Arg His Tyr Trp Glu Val Glu Val Gly				
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ggg cgg cgg ggc tgg gcg gtg ggt gct gcc cgt gaa tca acc cat cat				473
Gly Arg Arg Gly Trp Ala Val Gly Ala Ala Arg Glu Ser Thr His His				
74	79	84	89	
aag gaa aag gtg ggc cct ggg ggt tcc tcc gtg ggc agc ggg gat gcc				521
Lys Glu Lys Val Gly Pro Gly Gly Ser Ser Val Gly Ser Gly Asp Ala				
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agc tcc tgc cgc cat cac cat cgc cgc cgc cgg ctc cac ctg ccc cag				569
Ser Ser Ser Arg His His His Arg Arg Arg Arg Leu His Leu Pro Gln				
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cag ccc ctg ctc cag cgg gaa gtg tgg tgc gtg ggc acc aac ggc aaa				617
Gln Pro Leu Leu Gln Arg Glu Val Trp Cys Val Gly Thr Asn Gly Lys				
122	127	132	137	
cgc tat cag gcc cag agc tcc aca gaa cag acg ctg ctg agc ccc agt				665
Arg Tyr Gln Ala Gln Ser Ser Thr Glu Gln Thr Leu Leu Ser Pro Ser				
138	143	148	153	
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Glu Lys Pro Arg Arg Phe Gly Val Tyr Leu Asp Tyr Glu Ala Gly Arg				
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Leu Gly Phe Tyr Asn Ala Glu Thr Leu Ala His Val His Thr Phe Ser				
170	175	180	185	
gct gcc ttc ctg ggc gag cgt gtc ttt cct ttc ttc cgg gtg ctc tcc				809
Ala Ala Phe Leu Gly Glu Arg Val Phe Pro Phe Phe Arg Val Leu Ser				
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Lys Gly Thr Arg Ile Lys Leu Cys Pro *				
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ccgcgcccgg agcatctccc tggaggaacg gagacaaagg aggattc atg tcc aaa	176
	Met Ser Lys
	1
ggg ctc cca gag acc agg acg gac gca gcc atg tca gag ctg gtg cct	224
Gly Leu Pro Glu Thr Arg Thr Asp Ala Ala Met Ser Glu Leu Val Pro	
4 9 14 19	
gag ccc agg cct aag cca gcg gtg ccc atg aag ccc atg agc atc aac	272
Glu Pro Arg Pro Lys Pro Ala Val Pro Met Lys Pro Met Ser Ile Asn	
20 25 30 35	
tcc aac ctg ctg ggc tac atc ggc atc gac acc atc atc gag cag atg	320
Ser Asn Leu Leu Gly Tyr Ile Gly Ile Asp Thr Ile Ile Glu Gln Met	
36 41 46 51	
cgc aag aag acc atg aag acc ggt ttc gac ttc aac atc atg gtc gtt	368

Arg Lys Lys Thr Met Lys Thr Gly Phe Asp Phe Asn Ile Met Val Val  
 52 57 62 67

ggc cag agt gga ctg ggc aaa tca acg ctg gtc aac acg ctc ttc aaa 416  
 Gly Gln Ser Gly Leu Gly Lys Ser Thr Leu Val Asn Thr Leu Phe Lys  
 68 73 78 83

tcc caa gtg agc cgc aag gcc tcc agc tgg aac cgg gag gag aag atc 464  
 Ser Gln Val Ser Arg Lys Ala Ser Ser Trp Asn Arg Glu Glu Lys Ile  
 84 89 94 99

ccc aag aca gtg gag atc aaa gct atc ggg cat gtg ata gag gaa ggc 512  
 Pro Lys Thr Val Glu Ile Lys Ala Ile Gly His Val Ile Glu Glu Gly  
 100 105 110 115

ggg gtc aaa atg aag ctg acc gtc atc gac acc cca ggc ttt gga gac 560  
 Gly Val Lys Met Lys Leu Thr Val Ile Asp Thr Pro Gly Phe Gly Asp  
 116 121 126 131

caa atc aac aat gaa aac tgc tgg gag ccc att gag aag tac atc aat 608  
 Gln Ile Asn Asn Glu Asn Cys Trp Glu Pro Ile Glu Lys Tyr Ile Asn  
 132 137 142 147

gag cag tac gag aag ttc ctg aag gag gag gtc aac atc gcc agg aag 656  
 Glu Gln Tyr Glu Lys Phe Leu Lys Glu Glu Val Asn Ile Ala Arg Lys  
 148 153 158 163

aaa cgc atc cct gac act cgt gtc cac tgc tgc ctt tac ttc atc tct 704  
 Lys Arg Ile Pro Asp Thr Arg Val His Cys Cys Leu Tyr Phe Ile Ser  
 164 169 174 179

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 Pro Thr Gly His Ser Leu Arg Pro Leu Asp Leu Glu Phe Met Lys His  
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 228 233 238 243

gat ttg gag gat aag acg gag aat gac aaa atc agg cag gag agc atg 944  
 Asp Leu Glu Asp Lys Thr Glu Asn Asp Lys Ile Arg Gln Glu Ser Met  
 244 249 254 259

cct ttt gct gtg gtg gga agt gac aag gag tac caa gtg aat ggc aag 992  
 Pro Phe Ala Val Val Gly Ser Asp Lys Glu Tyr Gln Val Asn Gly Lys  
 260 265 270 275

agg gtc ctc ggc cga aaa act cca tgg ggg atc atc gaa gtg gaa aac 1040  
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276	281	286	291	
ctc aac cac tgt gag ttt gcc ctg ctt cga gac ttt gtc atc agg acc				1088
Leu Asn His Cys Glu Phe Ala Leu Leu Arg Asp Phe Val Ile Arg Thr				
292	297	302	307	
cac ctc cag gac ctc aag gaa gtg aca cac aac atc cac tat gag act				1136
His Leu Gln Asp Leu Lys Glu Val Thr His Asn Ile His Tyr Glu Thr				
308	313	318	323	
tac agg gcc aag cgg ctc aat gac aat gga ggc ctc cct ccg gtg agc				1184
Tyr Arg Ala Lys Arg Leu Asn Asp Asn Gly Gly Leu Pro Pro Val Ser				
324	329	334	339	
gtg gac aca gag gaa agc cac gac agt aac cca tga cgac cacttctctg				1234
Val Asp Thr Glu Glu Ser His Asp Ser Asn Pro *				
340	345	350		
tgatcatcaca catacccact tcacacacac acatcccaaa taccaccacc aaccaccttc				1294
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	Met	
	1	
ttg cgc tgg ctg cgg gac ttc gtg ctg ccc acc gcg gcc tgc cag gac		163
Leu Arg Trp Leu Arg Asp Phe Val Leu Pro Thr Ala Ala Cys Gln Asp		
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gcg gag cag ccg atg cgc tac gag acc ctc ttc cag gca ctg gac cgc		211
Ala Glu Gln Pro Met Arg Tyr Glu Thr Leu Phe Gln Ala Leu Asp Arg		



18

23

28

33

aat ggg gac gga gtg gtg gac atc ggc gag ctg cag gag ggg ctc agg  
 Asn Gly Asp Gly Val Val Asp Ile Gly Glu Leu Gln Glu Gly Leu Arg  
 34 39 44 49

259

aac ctg ggc atc cct ctg ggc cag gac gcc gag gag aaa att ttt act  
 Asn Leu Gly Ile Pro Leu Gly Gln Asp Ala Glu Glu Lys Ile Phe Thr  
 50 55 60 65

307

act gga gat gtc aac aaa gat ggg aag ctg gat ttt gaa gaa ttt atg  
 Thr Gly Asp Val Asn Lys Asp Gly Lys Leu Asp Phe Glu Glu Phe Met  
 66 71 76 81

355

aag tac ctt aaa gac cat gag aag aaa atg aaa ttg gca ttt aag agt  
 Lys Tyr Leu Lys Asp His Glu Lys Lys Met Lys Leu Ala Phe Lys Ser  
 82 87 92 97

403

tta gac aaa aat aat gat gga aaa att gag gct tca gaa att gtc cag  
 Leu Asp Lys Asn Asn Asp Gly Lys Ile Glu Ala Ser Glu Ile Val Gln  
 98 103 108 113

451

tct ctc cag aca ctg ggt ctg act att tct gaa caa caa gca gag ttg  
 Ser Leu Gln Thr Leu Gly Leu Thr Ile Ser Glu Gln Gln Ala Glu Leu  
 114 119 124 129

499

att ctt caa agc att gat gtt gat ggg aca atg aca gtg gac tgg aat  
 Ile Leu Gln Ser Ile Asp Val Asp Gly Thr Met Thr Val Asp Trp Asn  
 130 135 140 145

547

gaa tgg aga gac tac ttc tta ttt aat cct gtt aca gac att gag gaa  
 Glu Trp Arg Asp Tyr Phe Leu Phe Asn Pro Val Thr Asp Ile Glu Glu  
 146 151 156 161

595

att atc cgt ttc tgg aaa cat tct aca gga att gac ata ggg gat agc  
 Ile Ile Arg Phe Trp Lys His Ser Thr Gly Ile Asp Ile Gly Asp Ser  
 162 167 172 177

643

tta act att cca gat gaa ttc acg gaa gac gaa aaa aaa tcc gga caa  
 Leu Thr Ile Pro Asp Glu Phe Thr Glu Asp Glu Lys Lys Ser Gly Gln  
 178 183 188 193

691

tgg tgg agg cag ctt ttg gca gga ggc att gct ggt gct gtc tct cga  
 Trp Trp Arg Gln Leu Leu Ala Gly Gly Ile Ala Gly Ala Val Ser Arg  
 194 199 204 209

739

aca agc act gcc cct ttg gac cgt ctg aaa atc atg atg cag gtt cac  
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 210 215 220 225

787

ggt tca aaa tca gac aaa atg aac ata ttt ggt ggc ttt cga cag atg  
 Gly Ser Lys Ser Asp Lys Met Asn Ile Phe Gly Gly Phe Arg Gln Met  
 226 231 236 241

835

gta aaa gaa gga ggt atc cgc tcg ctt tgg agg gga aat ggt aca aac  
 Val Lys Glu Gly Gly Ile Arg Ser Leu Trp Arg Gly Asn Gly Thr Asn  
 242 247 252 257

883

gtc atc aaa att gct cct gag aca gct gtt aaa ttc tgg gca tat gaa	931
Val Ile Lys Ile Ala Pro Glu Thr Ala Val Lys Phe Trp Ala Tyr Glu	
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cag tac aag aag tta ctt act gaa gaa gga caa aaa ata gga aca ttt	979
Gln Tyr Lys Lys Leu Leu Thr Glu Glu Gly Gln Lys Ile Gly Thr Phe	
274 279 284 289	
gag aga ttt att tct ggt tcc atg gct gga gca act gca cag act ttt	1027
Glu Arg Phe Ile Ser Gly Ser Met Ala Gly Ala Thr Ala Gln Thr Phe	
290 295 300 305	
ata tat cca atg gag gtt atg aaa acc agg ctg gct gta ggc aaa act	1075
Ile Tyr Pro Met Glu Val Met Lys Thr Arg Leu Ala Val Gly Lys Thr	
306 311 316 321	
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Gly Gln Tyr Ser Gly Ile Tyr Asp Cys Ala Lys Lys Ile Leu Lys His	
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Glu Gly Leu Gly Ala Phe Tyr Lys Gly Tyr Val Pro Asn Leu Leu Gly	
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Ile Ile Pro Tyr Ala Gly Ile Asp Leu Ala Val Tyr Glu Leu Leu Lys	
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Ser Tyr Trp Leu Asp Asn Phe Ala Lys Asp Ser Val Asn Pro Gly Val	
370 375 380 385	
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Met Val Leu Leu Gly Cys Gly Ala Leu Ser Ser Thr Cys Gly Gln Leu	
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Ala Ser Tyr Pro Leu Ala Leu Val Arg Thr Arg Met Gln Ala Gln Ala	
402 407 412 417	
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Met Leu Glu Gly Ser Pro Gln Leu Asn Met Val Gly Leu Phe Arg Arg	
418 423 428 433	
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Ile Ile Ser Lys Glu Gly Ile Pro Gly Leu Tyr Arg Gly Ile Thr Pro	
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 Val Leu Leu Leu His Leu Val Leu Gln Arg Trp Leu Ala Ala Gly Ala  
 9 14 19 24

cag gcc acc ccc cag gtc ttt gac ctt ctc cca tct tcc agt cag agg 147  
 Gln Ala Thr Pro Gln Val Phe Asp Leu Leu Pro Ser Ser Ser Gln Arg  
 25 30 35 40

cta aac cca ggc gct ctg ctg cca gtc ctg aca gac ccc gcc ctg aat 195  
 Leu Asn Pro Gly Ala Leu Leu Pro Val Leu Thr Asp Pro Ala Leu Asn  
 41 46 51 56

gat ctc tat gtg att tcc acc ttc aag ctg cag act aaa agt tca gcc 243  
 Asp Leu Tyr Val Ile Ser Thr Phe Lys Leu Gln Thr Lys Ser Ser Ala  
 57 62 67 72

acc atc ttc ggt ctt tac tct tca act gac aac agt aaa tat ttt gaa 291  
 Thr Ile Phe Gly Leu Tyr Ser Ser Thr Asp Asn Ser Lys Tyr Phe Glu  
 73 78 83 88

ttt act gtg atg gga cgc tta agc aaa gcc atc ctc cgt tac ctg aag 339  
 Phe Thr Val Met Gly Arg Leu Ser Lys Ala Ile Leu Arg Tyr Leu Lys  
 89 94 99 104

aac gat ggg aag gtg cat ttg gtg gtt ttc aac aac ctg cag ctg gca 387  
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 Asp Gly Arg Arg His Arg Ile Leu Leu Arg Leu Ser Asn Leu Gln Arg  
 121 126 131 136

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 137 142 147 152

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Val His Asn Leu Pro Arg Ala Phe Ala Gly Pro Ser Gln Lys Pro Glu	
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Gln Asp Cys Phe Leu Gln Gln Ser Glu Pro Leu Ala Ala Thr Gly Thr	
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Cys Pro Glu Gly Tyr Thr Gly Asn Gly Ile Thr Cys Ile Asp Val Asp	
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Glu Cys Lys Tyr His Pro Cys Tyr Pro Gly Val His Cys Ile Asn Leu	
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Ser Pro Gly Phe Arg Cys Asp Ala Cys Pro Val Gly Phe Thr Gly Pro	
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Ile Cys Val Asn Thr Leu Gly Ser Tyr Arg Cys Gly Pro Cys Lys Pro	
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Gly Tyr Thr Gly Asp Gln Ile Arg Gly Cys Lys Val Glu Arg Asn Cys	
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Arg Asn Pro Glu Leu Asn Pro Cys Ser Val Asn Ala Gln Cys Ile Glu	
425 430 435 440	
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Glu Arg Gln Gly Asp Val Thr Cys Val Cys Gly Val Gly Trp Ala Gly	
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Asp Gly Tyr Ile Cys Gly Lys Asp Val Asp Ile Asp Ser Tyr Pro Asp	
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Glu Glu Leu Pro Cys Ser Ala Arg Asn Cys Lys Lys Asp Asn Cys Lys	
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Phe Pro Asn Arg Asp Gln Arg Asp Lys Asp Gly Asp Gly Val Gly Asp	
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Ser Ala Gln Leu Asp Thr Asp Lys Asp Gly Ile Gly Asp Glu Cys Asp	
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gac gga gtg gga gac atc tgt gag tct gac ttt gac cag gac cag gtc	2163
Asp Gly Val Gly Asp Ile Cys Glu Ser Asp Phe Asp Gln Asp Gln Val	
697 702 707 712	
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Ile Asp Arg Ile Asp Val Cys Pro Glu Asn Ala Glu Val Thr Leu Thr	
713 718 723 728	
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729 734 739 744	
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Gln Ile Asp Pro Asn Trp Val Val Leu Asn Gln Gly Met Glu Ile Val	
745 750 755 760	
cag acc atg aac agt gat cct ggc ctg gca gtg ggg tac aca gct ttt	2355
Gln Thr Met Asn Ser Asp Pro Gly Leu Ala Val Gly Tyr Thr Ala Phe	
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 gcctcgagac tgaagaccga taaactcaag cc atg gag gga tta ctg cat tac 173  
 Met Glu Gly Leu Leu His Tyr  
 1 5  
 atc aac cct gca cac gcc att tct ctc cta agt gcc ctg aat gag gag 221  
 Ile Asn Pro Ala His Ala Ile Ser Leu Leu Ser Ala Leu Asn Glu Glu  
 8 13 18 23  
 cgt ctc aaa gga cag ctg tgt gat gtg ctg ctg att gtt gga gac caa 269  
 Arg Leu Lys Gly Gln Leu Cys Asp Val Leu Leu Ile Val Gly Asp Gln  
 24 29 34 39  
 aag ttc cga gct cat aaa aac gtc ttg gct gcc agc agc gaa tac ttt 317  
 Lys Phe Arg Ala His Lys Asn Val Leu Ala Ala Ser Ser Glu Tyr Phe  
 40 45 50 55  
 cag agt tta ttc aca aat aag gaa aat gag tca caa act gta ttt cag 365  
 Gln Ser Leu Phe Thr Asn Lys Glu Asn Glu Ser Gln Thr Val Phe Gln  
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 Leu Asp Phe Cys Glu Pro Asp Ala Phe Asp Asn Val Leu Asn Tyr Ile  
 72 77 82 87  
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 Tyr Ser Ser Ser Leu Phe Val Glu Lys Ser Ser Leu Ala Ala Val Gln  
 88 93 98 103  
 gaa ctt ggc tat agt ctt ggg att tcc ttt ctg act aac atc gtt tct 509  
 Glu Leu Gly Tyr Ser Leu Gly Ile Ser Phe Leu Thr Asn Ile Val Ser  
 104 109 114 119



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Lys Thr Pro Gln Ala Pro Phe Pro Thr Cys Pro Asn Arg Lys Lys Val	
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Phe Val Glu Asp Asp Glu Asn Ser Ser Gln Lys Arg Ser Val Ile Val	
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Cys Gln Ser Arg Asn Glu Ala Gln Gly Lys Thr Val Ser Gln Asn Gln	
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Ala Asn Thr Asn Lys Pro His Val Pro Lys Pro Ile Glu Pro Leu His	
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Asn Leu Ser Leu Thr Glu Lys Ser Trp Pro Lys Asp Ser Ser Val Val	
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tat gca aag tct ctt gag cat tct gga tct ttg gat gat cct aat aga	845
Tyr Ala Lys Ser Leu Glu His Ser Gly Ser Leu Asp Asp Pro Asn Arg	
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Ile Ser Leu Val Lys Arg Asn Ala Val Leu Pro Ser Lys Pro Leu Gln	
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Asp Arg Glu Ala Met Asp Asp Lys Pro Gly Val Ser Gly Gln Leu Pro	
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Lys Gly Lys Ala Leu Glu Leu Ala Leu Lys Arg Pro Arg Pro Pro Val	
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Leu Ser Val Cys Ser Ser Ser Glu Thr Pro Tyr Leu Leu Lys Glu Thr	
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Asn Lys Gly Asn Gly Gln Gly Glu Asp Arg Asn Leu Leu Tyr Tyr Ser	
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Lys Leu Gly Leu Val Ile Pro Ser Ser Gly Ser Gly Ser Gly Asn Gln	
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Ser Ile Asp Arg Ser Gly Pro Leu Val Lys Ser Leu Leu Arg Arg Ser	
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Lys	Ser	Ser	Gln	Gly	Ile	Ile	Phe	Gly	Val	Gln	*					
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ctaattcggc atg tta aaa aat aag ggt cac tca tct aag aaa gat aac 289  
Met Leu Lys Asn Lys Gly His Ser Ser Lys Lys Asp Asn  
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Leu Ala Val Asn Ala Val Ala Leu Gln Asp His Ile Leu His Asp Leu  
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Gln Leu Arg Asn Leu Ser Val Ala Asp His Ser Lys Thr Gln Val Gln  
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46 51 56 61	
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Thr Gly Leu Lys Lys Thr Thr Gln Cys Pro Lys Leu Glu Asp Ser Glu	
62 67 72 77	
aaa gaa tat gtt ctt gat ccc aaa ccg ccg ccg ttg act ttg gca cag	529
Lys Glu Tyr Val Leu Asp Pro Lys Pro Pro Pro Leu Thr Leu Ala Gln	
78 83 88 93	
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Lys Leu Gly Leu Ile Gly Pro Pro Pro Pro Pro Leu Ser Ser Asp Glu	
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Trp Glu Lys Val Lys Gln Arg Ser Leu Leu Gln Gly Asp Ser Val Gln	
110 115 120 125	
cca tgc ccc atc tgt aaa gaa gaa ttc gag ctt cgt cct cag gtg ttt	673
Pro Cys Pro Ile Cys Lys Glu Glu Phe Glu Leu Arg Pro Gln Val Phe	
126 131 136 141	
agc ata cga ggg tgc tgc ttt cat gct ccc atg tgt tcc aca aag cat	721
Ser Ile Arg Gly Cys Cys Phe His Ala Pro Met Cys Ser Thr Lys His	
142 147 152 157	
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Val Phe Arg Leu Leu Lys Ser Ser Gln Ile Arg Lys Pro Val Leu Ser	
158 163 168 173	
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Val Glu Arg Thr Ser Ile Lys Pro Glu *	
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 Glu Asp Ser Ile Ser Ser Thr Ile Met Asp Val Asp Ser Thr Ile Ser  
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 30                  35                  40                  45

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 Ser Ser Ser Lys Asn Ile Ala Tyr Asn Cys Cys Trp Asp Gln Cys Gln  
 46                  51                  56                  61

gct tgc ttc aac tct agc cca gat ctg gca gat cac atc cgt tcc ata 242  
 Ala Cys Phe Asn Ser Ser Pro Asp Leu Ala Asp His Ile Arg Ser Ile  
 62                  67                  72                  77

cat gta gat ggt cag cga gga ggg gta ttt gtt tgc tta tgg aaa ggt 290  
 His Val Asp Gly Gln Arg Gly Gly Val Phe Val Cys Leu Trp Lys Gly  
 78                  83                  88                  93

tgt aaa gta tat aac act cca tct acc agt caa agt tgg tta caa agg 338  
 Cys Lys Val Tyr Asn Thr Pro Ser Thr Ser Gln Ser Trp Leu Gln Arg  
 94                  99                  104                  109

cat atg ctg aca cac agt gga gac aaa cct ttc aag tgt gtt gtt ggt 386  
 His Met Leu Thr His Ser Gly Asp Lys Pro Phe Lys Cys Val Val Gly  
 110                  115                  120                  125

ggc tgc aat gcc agc ttt gct tct cag gga ggg cta gct cgt cat gta 434  
 Gly Cys Asn Ala Ser Phe Ala Ser Gln Gly Gly Leu Ala Arg His Val  
 126                  131                  136                  141

ccc aca cac ttc agt cag cag aac tcc tca aaa gtt tct agc cag cca 482  
 Pro Thr His Phe Ser Gln Gln Asn Ser Ser Lys Val Ser Ser Gln Pro  
 142                  147                  152                  157

aag gcc aaa gaa gaa tct cct tct aaa gct gga atg aac aaa agg agg 530  
 Lys Ala Lys Glu Glu Ser Pro Ser Lys Ala Gly Met Asn Lys Arg Arg  
 158                  163                  168                  173

aaa tta aag aac aaa aga cga cgc tca tta cca cgg cca cat gat ttc	578
Lys Leu Lys Asn Lys Arg Arg Arg Ser Leu Pro Arg Pro His Asp Phe	
174 179 184 189	
ttc gat gca caa aca ctg gat gcg ata aga cat cga gcc ata tgc ttt	626
Phe Asp Ala Gln Thr Leu Asp Ala Ile Arg His Arg Ala Ile Cys Phe	
190 195 200 205	
aac ctc tca gct cat ata gaa agt tta ggg aag gga cac agt gtt gtt	674
Asn Leu Ser Ala His Ile Glu Ser Leu Gly Lys Gly His Ser Val Val	
206 211 216 221	
ttt cat agt cct gta ata gct aag aga aaa gaa gat tct ggg aag atc	722
Phe His Ser Pro Val Ile Ala Lys Arg Lys Glu Asp Ser Gly Lys Ile	
222 227 232 237	
aaa ctt ttg ctt cat tgg atg cct gaa gac att ctg cat gat gtg tgg	770
Lys Leu Leu Leu His Trp Met Pro Glu Asp Ile Leu His Asp Val Trp	
238 243 248 253	
gtg aat gaa agt gaa cga cat cag tta aaa act aaa gta gtt cat tta	818
Val Asn Glu Ser Glu Arg His Gln Leu Lys Thr Lys Val Val His Leu	
254 259 264 269	
tca aag cta ccc aaa gat act gcc ttg ctt ttg gac cca aac ata tac	866
Ser Lys Leu Pro Lys Asp Thr Ala Leu Leu Leu Asp Pro Asn Ile Tyr	
270 275 280 285	
aga aca atg ccg cag aag agg ttg aag agg taa aaaaaaaaaa aaaaa	914
Arg Thr Met Pro Gln Lys Arg Leu Lys Arg *	
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cag ctg atg gcg gag gcc gag aag cga gtc aag gcc tcc cac tcc ttc	98
Gln Leu Met Ala Glu Ala Glu Lys Arg Val Lys Ala Ser His Ser Phe	
12 17 22 27	
ctc cga ggg ctg ttt gga gga aac aca aga ata gaa gag gct tgt gaa	146
Leu Arg Gly Leu Phe Gly Gly Asn Thr Arg Ile Glu Glu Ala Cys Glu	

28	33	38	43	
atg tat acc aga gct gca aat atg ttc aag atg gct aaa aat tgg agt				194
Met Tyr Thr Arg Ala Ala Asn Met Phe Lys Met Ala Lys Asn Trp Ser				
44	49	54	59	
gct gca gga aac gca ttt tgt cag gca gcc aag ctc cac atg cag ctt				242
Ala Ala Gly Asn Ala Phe Cys Gln Ala Ala Lys Leu His Met Gln Leu				
60	65	70	75	
cag agc aaa cat gac tct gct acc agc ttt gtg gat gct gga aat gct				290
Gln Ser Lys His Asp Ser Ala Thr Ser Phe Val Asp Ala Gly Asn Ala				
76	81	86	91	
tac aaa aag gca gat ccc caa gag gct atc aac tgc tta aat gca gcc				338
Tyr Lys Lys Ala Asp Pro Gln Glu Ala Ile Asn Cys Leu Asn Ala Ala				
92	97	102	107	
atc gac att tac aca gac atg gga agg ttt aca att gca gcc aag cac				386
Ile Asp Ile Tyr Thr Asp Met Gly Arg Phe Thr Ile Ala Ala Lys His				
108	113	118	123	
cac att act att gca gag atc tat gag act gaa ctt gta gac att gag				434
His Ile Thr Ile Ala Glu Ile Tyr Glu Thr Glu Leu Val Asp Ile Glu				
124	129	134	139	
aag gct att gca cat tat gaa caa tct gct gat tat tac aaa gga gaa				482
Lys Ala Ile Ala His Tyr Glu Gln Ser Ala Asp Tyr Tyr Lys Gly Glu				
140	145	150	155	
gaa tcc aac agc tca gca aac aag tgt ctg ctg aag gtg gca gca tat				530
Glu Ser Asn Ser Ser Ala Asn Lys Cys Leu Leu Lys Val Ala Ala Tyr				
156	161	166	171	
gct gcc cag ctt gag cag tac cag aaa gcc att gag atc tat gag cag				578
Ala Ala Gln Leu Glu Gln Tyr Gln Lys Ala Ile Glu Ile Tyr Glu Gln				
172	177	182	187	
gtt ggg gcc aac aca atg gaa tat ccc ttt gtg gaa tac agg cca aag				626
Val Gly Ala Asn Thr Met Glu Tyr Pro Phe Val Glu Tyr Arg Pro Lys				
188	193	198	203	
gat act tct tca aag ctg cct ttt gcc act cta tag agac gagttgaagg				676
Asp Thr Ser Ser Lys Leu Pro Phe Ala Thr Leu *				
204	209	214		
ccagcttgct cttgagaata tgaggaatgt tccagcatta ctgattcaga gatgtaaatt				736
attgaaaaac tctagagctc atgacgacag acagggaact tacctgagca gtgaggattg				796
gtcctatatct gcttgacaga gttgacacat gtggtcgac aaagccttcc agggatgaga				856
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0歳人口	人	12,345	1歳人口	人	11,234
2歳人口	人	11,234	3歳人口	人	10,123
4歳人口	人	10,123	5歳人口	人	9,012
6歳人口	人	8,901	7歳人口	人	7,890
8歳人口	人	6,789	9歳人口	人	5,678
10歳人口	人	4,567	11歳人口	人	3,456
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 tttgctttga agtcaccttc ttatcttttg ccttggtgca ctctgaagg caaa atg 297  
 Met  
 1  
 gat cac aag cag ctc tgc tgg agc cac cca caa aaa tct ggc cag agt 345  
 Asp His Lys Gln Leu Cys Trp Ser His Pro Gln Lys Ser Gly Gln Ser  
 2 7 12 17  
 tct cgc tct tgt tgc atc tgc tca aac cag cat ggt ctg atc tgg aaa 393  
 Ser Arg Ser Cys Cys Ile Cys Ser Asn Gln His Gly Leu Ile Trp Lys  
 18 23 28 33  
 tat agc ctc aat atg tgc ctc cag tgt tgc cat cag tac gtg aag gat 441  
 Tyr Ser Leu Asn Met Cys Leu Gln Cys Cys His Gln Tyr Val Lys Asp  
 34 39 44 49  
 ata ggt ttc att aaa ttg gac taa gtgatcttcc ttgaatggat tatccaaggc 495  
 Ile Gly Phe Ile Lys Leu Asp \*  
 50 55  
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 agtcaaacga ca 567

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 gcagagagaa gggactgaac caggagcccc aaggcagggg tctggccctc cagaagatgg 180  
 gtcaagagga agagagccct ccaagagagg agaggcccca gcagagtcca aaggtacagt 240



gtggagccgc ctgacaagga ctgccatcca cc	atg gtg aag ctg ggc tgc agc	173
	Met Val Lys Leu Gly Cys Ser	
	1 5	
ttc tct ggg aag cca ggt aaa gac cct ggg gac cag gat ggg gct gcc		221
Phe Ser Gly Lys Pro Gly Lys Asp Pro Gly Asp Gln Asp Gly Ala Ala		
8 13 18 23		
atg gac agt gtg cct ctg atc agc ccc ttg gac atc agc cag ctc cag		269
Met Asp Ser Val Pro Leu Ile Ser Pro Leu Asp Ile Ser Gln Leu Gln		
24 29 34 39		
ccg cca ctc cct gac cag gtg gtc atc aag aca cag aca gaa tac cag		317
Pro Pro Leu Pro Asp Gln Val Val Ile Lys Thr Gln Thr Glu Tyr Gln		
40 45 50 55		
ctg tcc tcc cca gac cag cag aat ttc cct gac ctg gag ggc cag agg		365
Leu Ser Ser Pro Asp Gln Gln Asn Phe Pro Asp Leu Glu Gly Gln Arg		
56 61 66 71		
ctg aac tgc agc cac cca gag gaa ggg cgc agg ctg ccc acc gca cgg		413
Leu Asn Cys Ser His Pro Glu Glu Gly Arg Arg Leu Pro Thr Ala Arg		
72 77 82 87		
atg atc gcc ttc gcc atg gcg cta ctg ggc tgc gtg ctg atc atg tac		461
Met Ile Ala Phe Ala Met Ala Leu Leu Gly Cys Val Leu Ile Met Tyr		
88 93 98 103		
aag gcc atc tgg tac gac cag ttc acc tgc ccc gac ggc ttc ctg ctg		509
Lys Ala Ile Trp Tyr Asp Gln Phe Thr Cys Pro Asp Gly Phe Leu Leu		
104 109 114 119		
cgg cac aag atc tgc acg ccg ctg acc ctg gag atg tac tac acg gag		557
Arg His Lys Ile Cys Thr Pro Leu Thr Leu Glu Met Tyr Tyr Thr Glu		
120 125 130 135		
atg gac ccc gag cgc cac cgc agc atc ctg gcg gcc atc ggg gcc tac		605
Met Asp Pro Glu Arg His Arg Ser Ile Leu Ala Ala Ile Gly Ala Tyr		
136 141 146 151		
ccg ctg agc cgc aag cac ggc acg gag acg ccg gcg gcc tgg ggg gac		653
Pro Leu Ser Arg Lys His Gly Thr Glu Thr Pro Ala Ala Trp Gly Asp		
152 157 162 167		
ggc tac cgc gca gcc aag gag gag cgc aag ggg ccc acc cag gct ggg		701
Gly Tyr Arg Ala Ala Lys Glu Glu Arg Lys Gly Pro Thr Gln Ala Gly		
168 173 178 183		
gcg gcg gcg gcg gcc acc gaa ccc ccc ggg aag ccg tcg gcc aag gcg		749
Ala Ala Ala Ala Ala Thr Glu Pro Pro Gly Lys Pro Ser Ala Lys Ala		
184 189 194 199		
gag aag gag gcg gcg cgg aag gcg gcc ggg agc gcg gcg ccc ccg ccc		797
Glu Lys Glu Ala Ala Arg Lys Ala Ala Gly Ser Ala Ala Pro Pro Pro		
200 205 210 215		
gcg cag tga cgtctcc agccccgcag cccggccccg gcgtctctccg ccagctcctg		853

Ala Gln \*

216

tgaccagcgc gtctcccgat gctctccgcc gtgttcgtgt cccagggcgc cctcgtgca 913  
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ggaaggcagc ggcgaggtgc ctccccacgt acccctcgcg ggcccagccg agcaacgtgg 180  
ggcgaaggcg gcggcgaagg cccgggctgg gacgcttgcc ggccggagtc ccagcc 236  
atg gcg gag tct gtg gag cgc ctg cag cag cgg gtc cag gag ctg gag 284  
Met Ala Glu Ser Val Glu Arg Leu Gln Gln Arg Val Gln Glu Leu Glu  
1 5 10 15  
cgg gaa ctt gcc cag gag agg agt ctg cag gtc ccg agg agc ggc gac 332  
Arg Glu Leu Ala Gln Glu Arg Ser Leu Gln Val Pro Arg Ser Gly Asp 32  
17 22 27  
gga ggg ggc ggc cgg gtc cgc atc gag aag atg agc tca gag gtg gtg 380  
Gly Gly Gly Gly Arg Val Arg Ile Glu Lys Met Ser Ser Glu Val Val 48  
33 38 43  
gat tcg aat ccc tac agc cgc ttg atg gca ttg aaa cga atg gga att 428  
Asp Ser Asn Pro Tyr Ser Arg Leu Met Ala Leu Lys Arg Met Gly Ile 64  
49 54 59  
gta agc gac tat gag aaa atc cgt acc ttt gcc gta gca ata gta ggt 476  
Val Ser Asp Tyr Glu Lys Ile Arg Thr Phe Ala Val Ala Ile Val Gly 80  
65 70 75  
gtt ggt gga gta ggt agt gtg act gct gaa atg ctg aca aga tgt ggc 524  
Val Gly Gly Val Gly Ser Val Thr Ala Glu Met Leu Thr Arg Cys Gly 96  
81 86 91  
att ggt aag ttg cta ctc ttt gat tat gac aag gtg gaa cta gcc aat 572  
Ile Gly Lys Leu Leu Leu Phe Asp Tyr Asp Lys Val Glu Leu Ala Asn 112  
97 102 107

atg aat aga ctt ttc ttc caa cct cat caa gca gga tta agt aaa gtt	620
Met Asn Arg Leu Phe Phe Gln Pro His Gln Ala Gly Leu Ser Lys Val	
113 118 123 128	
caa gca gca gaa cat act ctg agg aac att aat cct gat gtt ctt ttt	668
Gln Ala Ala Glu His Thr Leu Arg Asn Ile Asn Pro Asp Val Leu Phe	
129 134 139 144	
gaa gta cac aac tat aat ata acc aca gtg gaa aac ttt caa cat ttc	716
Glu Val His Asn Tyr Asn Ile Thr Thr Val Glu Asn Phe Gln His Phe	
145 150 155 160	
atg gat aga ata agt aat ggt ggg tta gaa gaa gga aaa cct gtt gat	764
Met Asp Arg Ile Ser Asn Gly Gly Leu Glu Glu Gly Lys Pro Val Asp	
161 166 171 176	
cta gtt ctt agc tgt gtg gac aat ttt gaa gct cga atg aca ata aat	812
Leu Val Leu Ser Cys Val Asp Asn Phe Glu Ala Arg Met Thr Ile Asn	
177 182 187 192	
aca gct tgt aat gaa ctt gga caa aca tgg atg gaa tct ggg gtc agt	860
Thr Ala Cys Asn Glu Leu Gly Gln Thr Trp Met Glu Ser Gly Val Ser	
193 198 203 208	
gaa aat gca gtt tca ggg cat ata cag ctt ata att cct gga gaa tct	908
Glu Asn Ala Val Ser Gly His Ile Gln Leu Ile Ile Pro Gly Glu Ser	
209 214 219 224	
gct tgt ttt gcg tgt gct cca cca ctt gta gtt gct gca aat att gat	956
Ala Cys Phe Ala Cys Ala Pro Pro Leu Val Val Ala Ala Asn Ile Asp	
225 230 235 240	
gaa aag act ctg aaa cga gaa ggt gtt tgt gca gcc agt ctt cct acc	1004
Glu Lys Thr Leu Lys Arg Glu Gly Val Cys Ala Ala Ser Leu Pro Thr	
241 246 251 256	
act atg ggt gtg gtt gct ggg atc tta gta caa aac gtg tta aag ttt	1052
Thr Met Gly Val Val Ala Gly Ile Leu Val Gln Asn Val Leu Lys Phe	
257 262 267 272	
ctg tta aat ttt ggt act gtt agt ttt tac ctt gga tac aat gca atg	1100
Leu Leu Asn Phe Gly Thr Val Ser Phe Tyr Leu Gly Tyr Asn Ala Met	
273 278 283 288	
cag gat ttt ttt cct act atg tcc atg aag cca aat cct cag tgt gat	1148
Gln Asp Phe Phe Pro Thr Met Ser Met Lys Pro Asn Pro Gln Cys Asp	
289 294 299 304	
gac aga aat tgc agg aag cag cag gag gaa tat aag aaa aag gta gca	1196
Asp Arg Asn Cys Arg Lys Gln Gln Glu Glu Tyr Lys Lys Lys Val Ala	
305 310 315 320	
gca ctg cct aaa caa gag gtt ata caa gaa gag gaa gag ata atc cat	1244
Ala Leu Pro Lys Gln Glu Val Ile Gln Glu Glu Glu Glu Ile Ile His	
321 326 331 336	
gaa gat aat gaa tgg ggt att gag ctg gta tct gag gtt tca gaa gag	1292

Glu Asp Asn Glu Trp Gly Ile Glu Leu Val Ser Glu Val Ser Glu Glu	
337 342 347 352	
gaa ctg aaa aat ttt tca ggt cca gtt cca gac tta cct gaa gga att	1340
Glu Leu Lys Asn Phe Ser Gly Pro Val Pro Asp Leu Pro Glu Gly Ile	
353 358 363 368	
aca gtg gca tac aca att cca aaa aag caa gaa gat tct gtc act gag	1388
Thr Val Ala Tyr Thr Ile Pro Lys Lys Gln Glu Asp Ser Val Thr Glu	
369 374 379 384	
tta aca gtg gaa gat tct ggt gaa agc ttg gaa gac ctc atg gcc aaa	1436
Leu Thr Val Glu Asp Ser Gly Glu Ser Leu Glu Asp Leu Met Ala Lys	
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Asp Gln Arg Gln Arg Ser Leu Ser Thr Ser Gly Glu Ser Leu Tyr His	
3 8 13 18	
gtc ctt ggg ttg gac aag aac gca acc tca gat gac att aaa aag tcc	152
Val Leu Gly Leu Asp Lys Asn Ala Thr Ser Asp Asp Ile Lys Lys Ser	
19 24 29 34	
tat cgg aag ctt gcc ttg aaa tat cac ccc gac aag aac ccc gac aac	200
Tyr Arg Lys Leu Ala Leu Lys Tyr His Pro Asp Lys Asn Pro Asp Asn	
35 40 45 50	
ccg gag gcc gcg gac aag ttt aag gag atc aac aac gcg cac gcc atc	248
Pro Glu Ala Ala Asp Lys Phe Lys Glu Ile Asn Asn Ala His Ala Ile	
51 56 61 66	
ctc acg gac gcc aca aaa agg aac atc tac gac aag tac ggc tcg ctg	296
Leu Thr Asp Ala Thr Lys Arg Asn Ile Tyr Asp Lys Tyr Gly Ser Leu	
67 72 77 82	

ggt ctc tac gtg gcc gag cag ttt ggg gaa gag aac gtg aac acc tac	344
Gly Leu Tyr Val Ala Glu Gln Phe Gly Glu Glu Asn Val Asn Thr Tyr	
83 88 93 98	
ttc gtg ctg tcc agc tgg tgg gcc aag gcc ctg ttt gtc ttc tgc ggc	392
Phe Val Leu Ser Ser Trp Trp Ala Lys Ala Leu Phe Val Phe Cys Gly	
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Leu Leu Thr Cys Cys Tyr Cys Cys Cys Cys Leu Cys Cys Cys Phe Asn	
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tgc tgc tgc ggg aag tgt aag ccc aag gcg cct gaa ggc gag gag acg	488
Cys Cys Cys Gly Lys Cys Lys Pro Lys Ala Pro Glu Gly Glu Glu Thr	
131 136 141 146	
gag ttc tac gtg tcc ccc gag gat ctg gag gca cag ctg cag tct gac	536
Glu Phe Tyr Val Ser Pro Glu Asp Leu Glu Ala Gln Leu Gln Ser Asp	
147 152 157 162	
gag agg gag gcc aca gac acg ccg atc gtc ata cag ccg gca tcc gcc	584
Glu Arg Glu Ala Thr Asp Thr Pro Ile Val Ile Gln Pro Ala Ser Ala	
163 168 173 178	
acc gag acc acc cag ctc aca gcc gac tcc cac ccc agc tac cac act	632
Thr Glu Thr Thr Gln Leu Thr Ala Asp Ser His Pro Ser Tyr His Thr	
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Asp Gly Phe Asn *	
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